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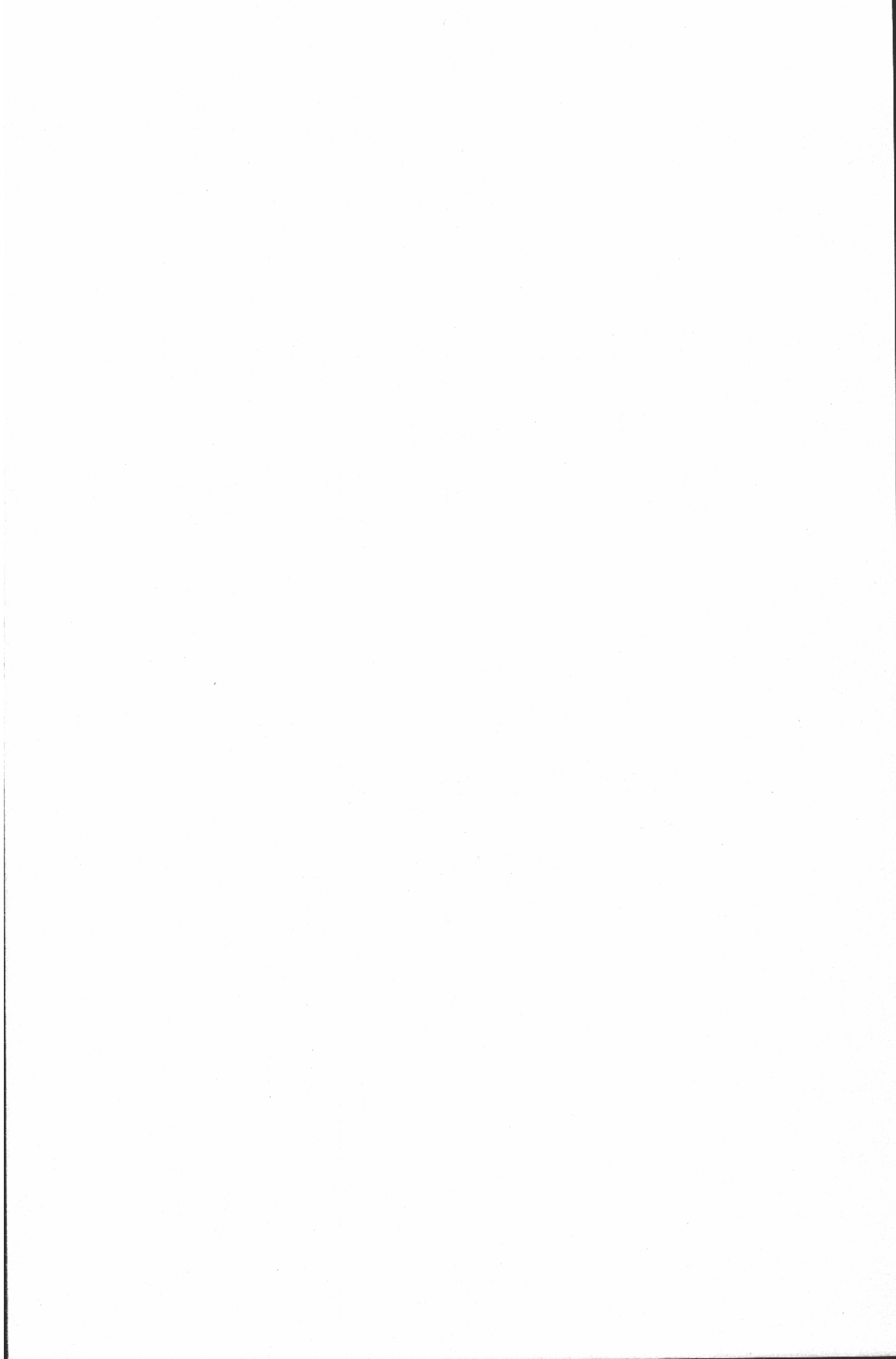
THE MODEL 100 BOOK

A Guide to
Portable Computing



Jonathan Erickson
Robert J. Sayre

**The Model 100 Book:
A Guide to
Portable Computing**



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and
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**THE MODEL 100 BOOK:
A GUIDE TO PORTABLE COMPUTING**

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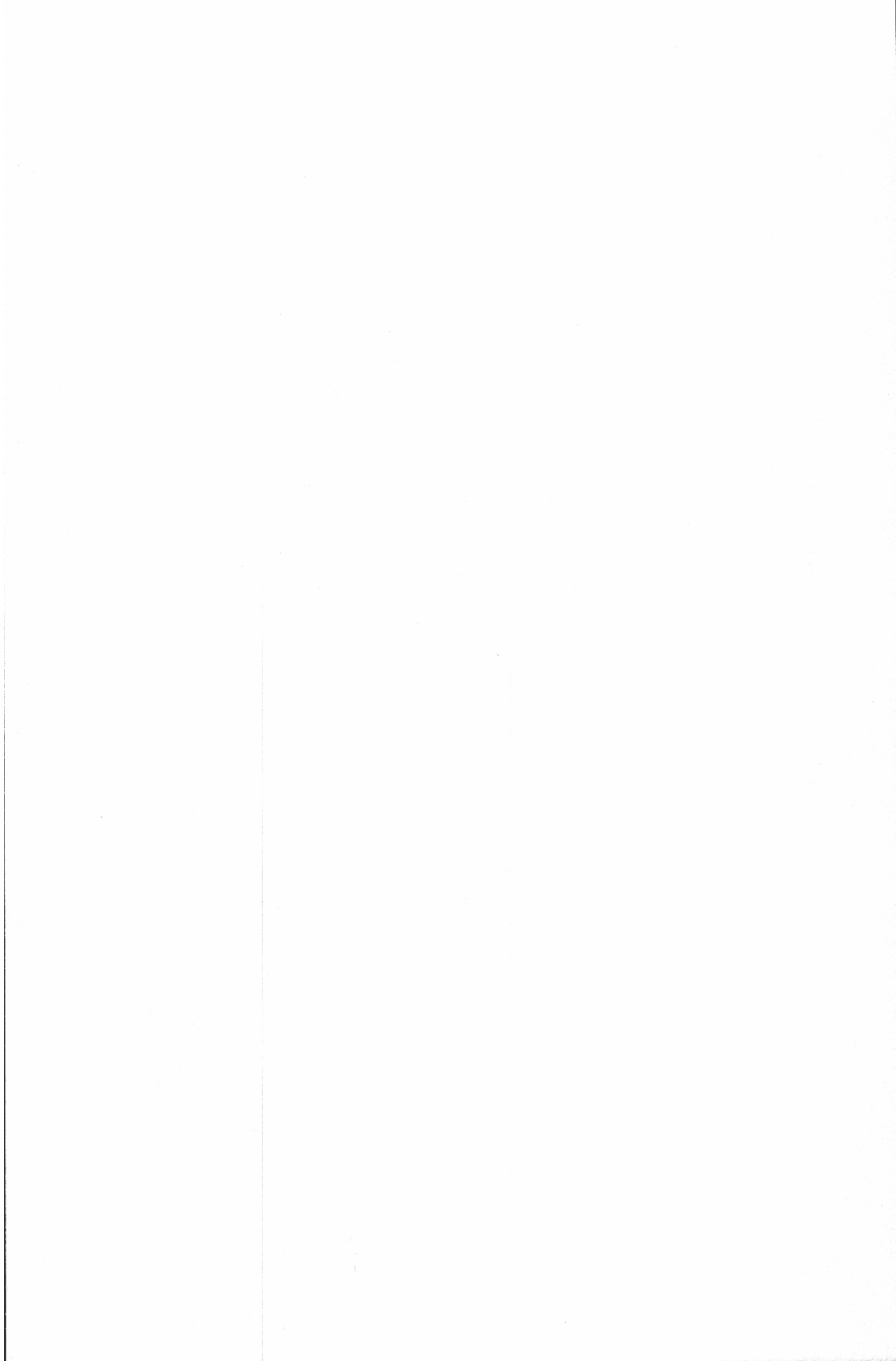
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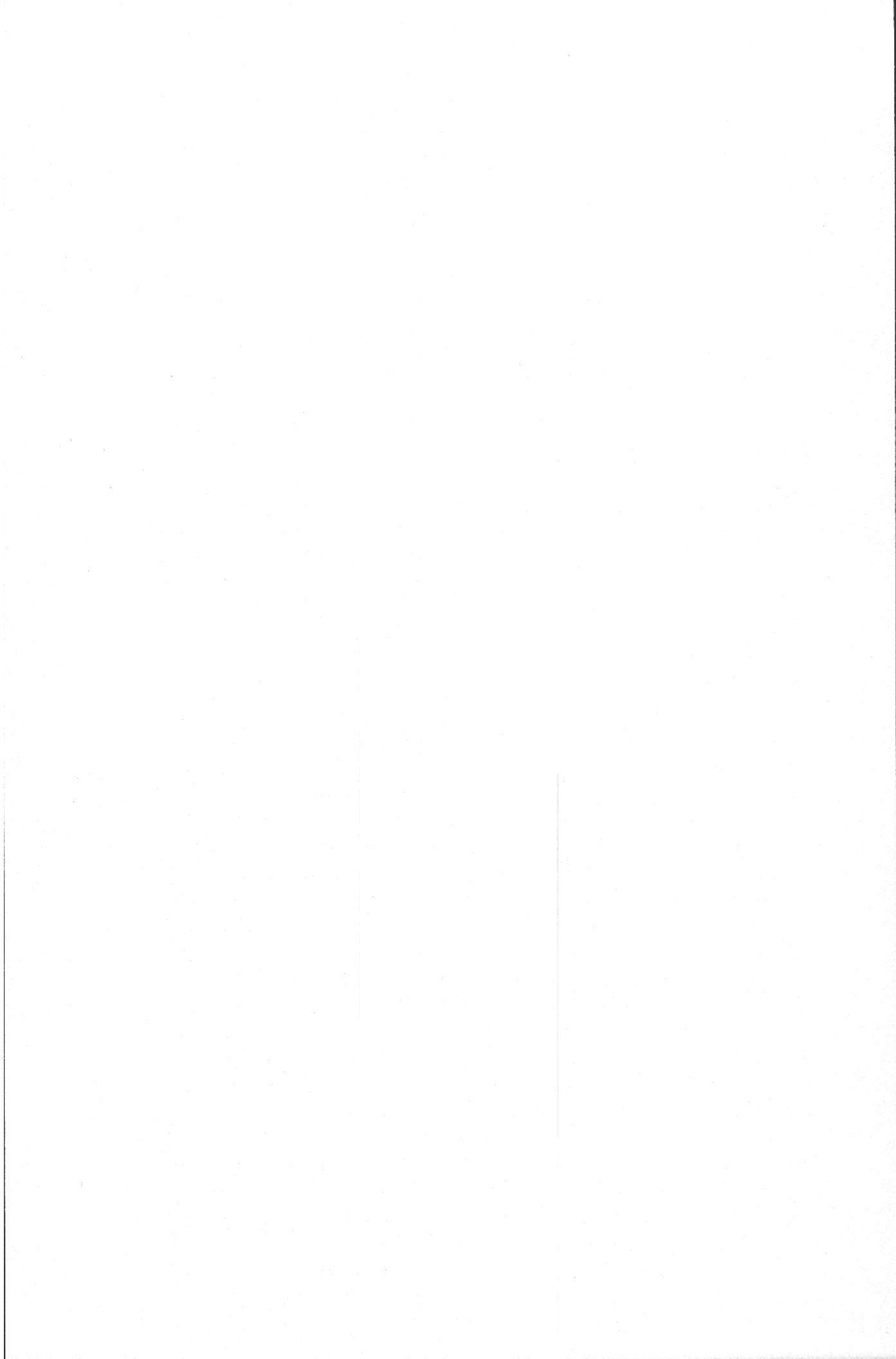


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Introduction

During what could have been the biggest sale of her career, Sue Campbell discovered she didn't have the inventory information she required to set a delivery date. Actually, the information was in her office computer—300 miles away.

On Christmas Eve, Dave Lammert was stuck in a phone booth on Michigan Avenue, trying to find flights out of Chicago. The travel agents had already gone home for the day and he was quickly running out of change. He wished there were a single phone number *he* could call to get available flight schedules.

And when Mary Teaff agreed to speak about computers and education before a local business group, she knew it would take several hours just to jot down her ideas, write the speech, and transfer it to index cards.

Sue, Dave, and Mary had a common problem—an information problem. The information they needed existed, but it wasn't easily accessible when they needed it most.

The obvious solution to the problem is to use a computer, a machine that has the sole purpose of processing and communicating information as quickly and accurately as possible.

Until recently, however, computers were mammoth, virtually incomprehensible machines that filled entire buildings and could not solve many of the immediate information problems that people face at home, on the road, or in small businesses. But over the last four or five years a new generation of computers—microcomputers—has been specifically designed for office desktops and home

tabletops. Millions of these machines have entered society, introducing computers to people with no previous computer experience.

But knowing how to use the 45-pound desktop computer with external 5 1/4-inch disk drives he had at home didn't solve Dave Lammert's immediate problem—namely, getting out of a cold phone booth into a commercial airliner. He needed to take that computer with him—even into a phone booth if necessary.

Computer manufacturers faced this challenge by developing “portable” computers, starting with the pocket-sized handheld computers like Radio Shack's PC-1 and PC-2. These are useful to thousands of people, but the tiny keyboard is almost impossible to use, the screen displays only a single line, and the computers cannot communicate with larger, general-purpose computers. Computer manufacturers realized that something between a pocket computer and a full-size, desktop microcomputer would be a highly marketable product.

Consequently, a series of medium-size “portable” computers appeared on the market. The first of these was the Osborne 1, which was actually a full-size computer in a portable case. These portables usually include disk drives, built-in display screens, and the capability to communicate with other computers; and although they weigh about 25 pounds, they can be carried around like a suitcase.

A “suitcase” portable is useful on business trips, as long as you only need to set it up and work on it in your hotel room. But sales representatives find these portable units too awkward to take into a customer's office. And no matter where you manage to take it, you must be within a few feet of a 120-volt wall outlet unless the computer has a battery pack. Battery packs don't solve the portability problem, though. Fellow airline passengers certainly wouldn't appreciate being crowded by a suitcase-size computer, even if you could set it up on an airplane.

In short, a truly portable computer hadn't been available although the need for one has obviously existed. Before trying to develop a portable computer, however, computer manufacturers needed to exactly define such a machine. They determined that a truly portable computer must have the following capabilities and characteristics:

- Is lightweight (preferably under five pounds) and easy to carry in a standard briefcase.

- Uses *standard* batteries as well as 120-volt AC.
- Includes a relatively large display.
- Includes a full-size, typewriter-style keyboard.
- Stores programs and data when the power is off.
- Includes “built-in” programs such as word processing, communications, and a programming language.
- Uses standard hardware connections for input/output devices such as printers, modems, cassette recorders, or other computers.
- Is easy to use.

One of the first true portables was Radio Shack’s TRS-80 Model 100—and it certainly made an impact. From all indications, the Model 100 will become as important a product for Radio Shack as their original Model I, the computer that introduced microcomputing to millions of computer novices.

The Model 100 fulfills all of the requirements of a truly portable, briefcase-size computer. It’s small (8 1/2" × 11" × 2") and lightweight (3.3 pounds), and it runs off AC or battery power (AA size). A full-size keyboard allows touch-typing and includes control and graphics character keys and a 10-key numeric pad. The Model 100 also has eight command keys (including cursor movement) and eight definable function keys.

The liquid crystal display (LCD) can accommodate 40 characters across the screen and 8 lines down. It also displays “dot-addressable” graphics for creating graphs and figures. Most LCDs are difficult to read from certain angles, but the Model 100’s display can be adjusted to be readable from a variety of viewing angles.

Another hardware feature is a serial (RS-232C) connector for communication with modems, serial printers, and other computers. The Model 100 has a parallel printer connector that allows it to be used with most dot-matrix and daisy wheel printers. A cassette recorder interface/connector provides external storage of programs and data. Special features include a connector for a bar code reader and a built-in modem for computer-to-computer communication over the phone.

The Model 100 has five built-in programs, including the BASIC programming language. It’s the efficient interaction of the built-in programs that makes the software especially powerful.

The program you'll use to write letters and reports is the word processing program TEXT. You can also type in and edit BASIC programs from TEXT, then transfer the program to BASIC for execution.

The program TELCOM enables the Model 100 to communicate with other computers either directly or by telephone. While some computer communication programs can be difficult and confusing, TELCOM is easy to learn and efficient to use. TELCOM automatically dials phone numbers, sets the necessary communications parameters, and sends ("uploads") or receives ("downloads") information to or from another computer.

Phone numbers, addresses, and information service log-on sequences used by TELCOM are stored in a third program called Address. TELCOM can automatically dial a phone number with the flip of a switch. It can also store hundreds of phone numbers and addresses for instant future reference.

The final built-in program is the memo file called Scheduler. This program has all of the text-editing features of TEXT, but uses a special file called NOTE.DO for notes and memos.

In short, the Model 100 is a truly portable computer. Here's how it could have solved the information problems described earlier.

Sue Campbell would have connected the Model 100 to the nearest phone, called her secretary, and had the necessary files sent over the telephone line into the Model 100.

Dave Lammert would have connected his Model 100 to the phone and, using the built-in TELCOM program, automatically dialed an information service. He could then have checked the airline schedules for the best available flight—all in a matter of minutes.

Mary Teaff could have noted her ideas using TEXT, set the Model 100 on the podium in front of her, and referred to the speech as it appeared on the LCD.

As you can see, the Model 100 solves problems that have never been addressed by a computer before. Or putting it another way, it's the first computer that adapts to its environment, instead of requiring the environment to adapt to it.

ABOUT THIS BOOK

This book is an "idea" book. Along with dozens of useful ideas, it provides practical examples for using your Model 100 in more situations than you can imagine.

You don't have to read the entire book if you're interested only in one operation or procedure. (After all, you don't read an entire cookbook to bake a cake or read every entry in the dictionary to define a single word.)

We suggest you begin by reviewing the Table of Contents. When you identify a procedure you want to perform, turn to that chapter. There you will find *everything* you need to do to perform that procedure. If a special procedure (such as saving a program onto cassette tape) isn't specifically listed in the Table of Contents, check the Index.

Even if you don't have a Model 100, you will find this book useful. Most of the programs in this book can easily be adapted to other forms of BASIC. Furthermore, the chapters that describe information services provide details not found elsewhere—even in some information services' user guides.

We've divided this book into four sections and three appendixes. Each section addresses a typical environment for using a Model 100:

- At the office
- At home
- In school
- Anywhere in between.

Each section is divided into chapters that detail a useful procedure. Some procedures involve typing in a BASIC program. Others might involve typing in a TEXT file. (Or in some cases, you'll create a TEXT file that you manipulate with a BASIC program.) At times, you may connect your Model 100 to a telephone and call up an information service. We describe each procedure, show you how to complete it, and suggest how you can adapt it to fit your particular needs.

Each chapter is organized in the same way:

- First, a brief situation illustrates a problem that a Model 100 can solve.
- Next, the chapter specifies the hardware connections (if any) and memory requirements for the procedure.
- Then any software entries (what you must type in on the keyboard) are described.
- If applicable, the chapter briefly describes how the routine

works. If the procedure involves a BASIC program, the chapter explains each module so you can modify it to suit your needs.

- The chapter next outlines the steps for using the program and supplies practical examples.
- Finally, the chapter offers suggestions for changing the procedure to fit your particular needs.

In short, each chapter provides “recipes” for using your Model 100, making this book a Model 100 cookbook. This book *does not* teach you how to program in BASIC, although it lists programs and explains how they work. If you want to learn more about programming, refer to your *TRS-80 Model 100 Owner's Manual* for details on Model 100 BASIC and *The Model 100 Companion* (Osborne/McGraw-Hill, 1984).

Remember, the “recipes” we’re cooking up in this book aren’t the only ways to use your Model 100. The Model 100 is an extremely versatile machine, and the procedures in this book merely introduce you to the information problems your Model 100 can solve.

A SPECIAL NOTE ABOUT INFORMATION SERVICES AND THIS BOOK

Throughout this book, we refer to several information services and networks, including CompuServe, Dow Jones News/Retrieval, and The Source. In most cases, we reference specific menus, prompts, and displays that appear on the Model 100 screen. At the time of publication this is the way the screens look. However, the prompts and menus are created by the particular information service and do change. So if a menu doesn’t appear the same on your Model 100 screen as it does in this book, don’t worry. Just use the “help” feature from your information service to learn how the menu has been changed and how you can use it.

Most of the descriptions of information service procedures in this book use CompuServe as an example. This doesn’t mean that your Model 100 can’t be used with the other services such as The Source—it can. To learn more about The Source or any other services, see Appendix A of this book.

PART

Traveling With Your Model 100

Whether for business or pleasure, for short jaunts or long trips, the Model 100 is an ideal traveling computer that can be used virtually anywhere. This section of the book demonstrates how your Model 100 can take some of the “business” out of traveling, and put more pleasure into it.

Before leaving on a trip it's a good idea to do a little extra planning for your Model 100 by following these steps:

- Take along plenty of extra batteries. (And don't pack all of them in a suitcase that may be in the airplane's baggage compartment when you need the batteries.)
- Take a Model 100 110-volt AC power adapter. Since many foreign countries have 220-volt DC wall sockets, you may need a 220-volt DC to 110-volt AC converter as well. To avoid harming your computer, check with your Radio Shack store before using any power converter with your Model 100.
- To perform some of the procedures described in this section, you'll also need the Model 100 Modem Cable or the Model 100 Acoustic Cups or both. Be sure to pack them. (On the other

hand, you probably won't need to take along a Model 100 Parallel Printer Cable unless you know someone enroute who has a printer.)

- If you know you'll need to store information on cassette tapes, take your recorder, a cassette recorder cable, extra tapes, and additional batteries for the recorder. There's nothing worse than having a memory full of files and having to choose which one to "kill," especially when they're all important.
- If you intend to communicate with an information service (such as CompuServe, Dow Jones News/Retrieval, or The Source), take along its local phone number directory. Don't forget your user ID and password either.

Before long your simple "portable" computer will require its own luggage. If you're taking a cassette recorder and other accessories, you might consider carrying a special briefcase specifically for the computer and its equipment. Radio Shack provides one case designed to carry the Model 100, a CCR-81 cassette recorder, and the Model 100 Acoustic Cups. Or consider a camera carrying case or an aluminum case with custom-cut foam padding.

In this section, we follow the travels of Dave Lammert, the midcontinent operations manager for a helicopter health emergency firm. Dave's story is based on that of a real person. His job and his traveling problems are real. We describe how a Model 100 can eliminate such problems for him and thus make his trips more productive and enjoyable.

The company Dave works for contracts with health centers and hospitals all over the United States and Canada to provide helicopters and helicopter flight crews for emergency medical care. Dave ensures that operations in the midcontinent region, from Ohio to Idaho and from Quebec to Texas, run smoothly. He travels at least two days a week to the hospitals in his area, visiting each unit every two months.

Usually Dave flies commercial airlines between locations, but he also rents cars. Transportation plus meals and lodging expenses produce stacks of cash receipts, which Dave must record so that he can be subsequently reimbursed. He also records all expenses charged to his company credit cards.

In addition, Dave carries files to each remote site. He visits two or three contract sites on a single trip, and he often carries an additional briefcase just for records. The notes he takes at each

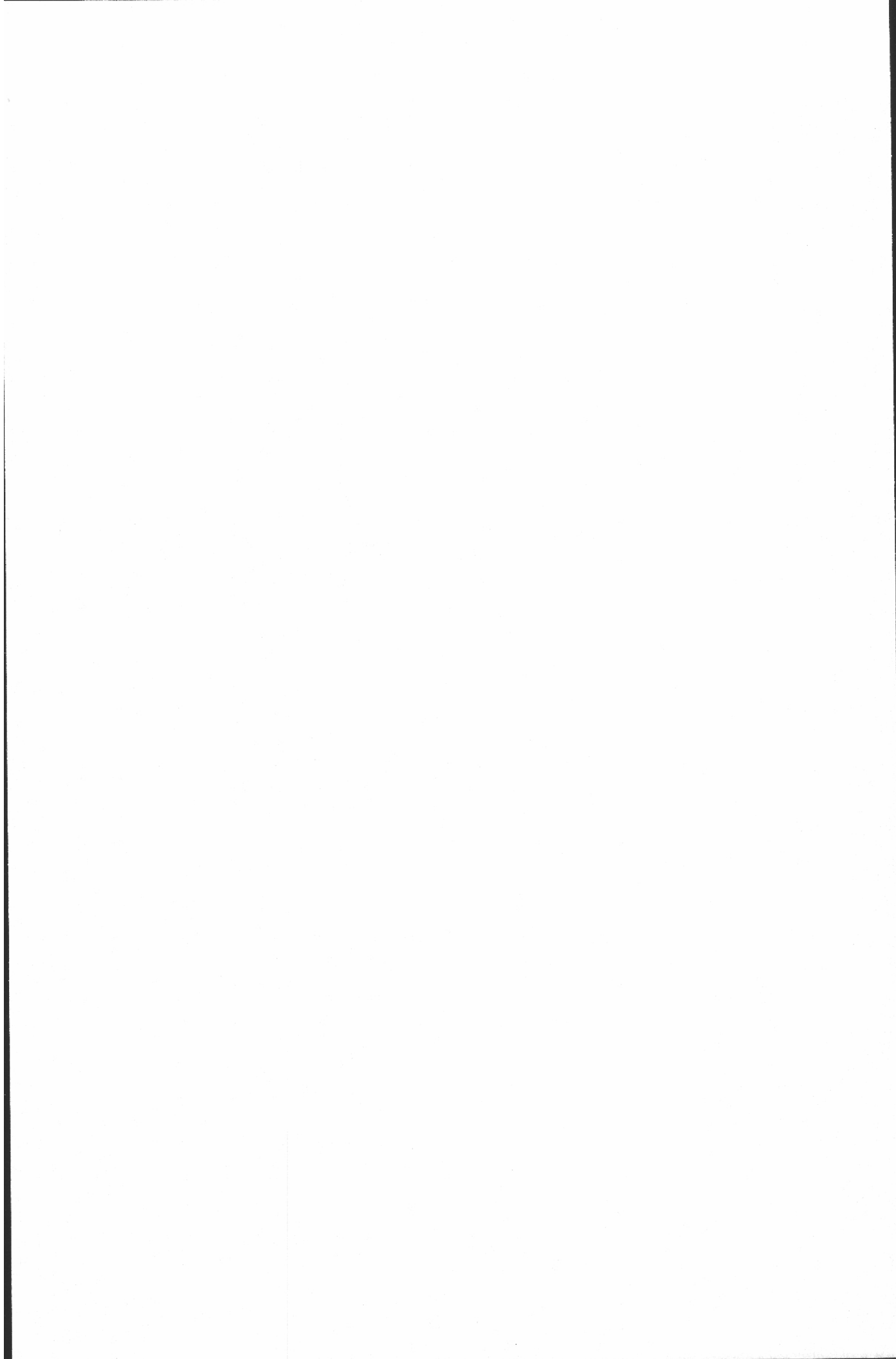
hospital are entered into the computer system when he returns to the office.

Sometimes Dave needs to rearrange his schedule midtrip, and he must find out about airline schedules immediately.

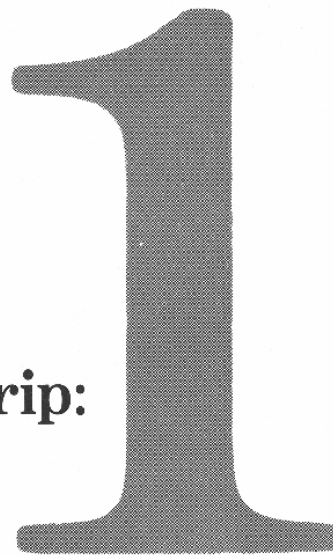
To further complicate things, Dave has two contracts in Canada, one of them in Montreal. He needs a working knowledge of French just to get around.

As you can imagine, every trip Dave takes has potential problems, many of which do occur. Granted, he isn't a typical traveler, but the problems he regularly encounters are the same ones that even a casual traveler will occasionally experience.

The following chapters look at some of these problems. In each case, we show how a Model 100 can help Dave avoid some problems altogether and better handle the unavoidable ones.



Managing Your Trip: Schedules and Expenses



For most individuals and companies, traveling can be a major — if not *the* major — business expense. Consequently, poor record-keeping and missed appointments can cost thousands of dollars. And like most people who consider travel a necessary evil of business, Dave Lammert must remember appointments and keep track of expenses in addition to performing his routine workload.

Typically, Dave must remember four things when he schedules each appointment on a trip:

- Date
- Time
- Location
- Subject.

And to track his expenses, he needs to record the following information for each expense:

- Amount of the expense
- Method of payment
- Date
- Location (city or name of restaurant)
- Miscellaneous notes (purpose, flight number, or next meeting).

Dave used to make long lists of appointments and flight schedules before he left on a trip. During the trip, he would jot down notes and expenses on anything that was handy. He knew it wasn't an efficient way to run a business, but he didn't know what else to do.

When he got his Model 100, Dave found he could use the Travel Master program described in this chapter to plan his trip and to record his travel expenses. The time and money Dave saved by using the Travel Master program alone paid for the computer.

ABOUT THE TRAVEL MASTER PROGRAM

Travel Master is a simple-to-use yet powerful tool for managing business and vacation trips. It lets you arrange your schedule so that you never forget an appointment or meeting—unless you forget your Model 100. It keeps track of expenses so that you'll never worry about losing records or add up expenses on the back of a napkin.

There are two parts to the program: the Scheduler routine and the Expense routine. These arrange ("sort out") your entries as you make them so you don't need to sort and re-sort them to keep items in order. Furthermore, you can review any expense or appointment by date, account number, or special topic. For example, you can list all lunches charged at your favorite restaurant, all cash expenses, or all appointments scheduled for April 13th. The Expense routine even keeps a running total of expenses to date.

To check schedules or expenses (while you're on a plane flight, for instance) you can use these routines to look up a particular item that you've stored in the computer. Or when you return home from a trip and want to make your records permanent, you can attach a printer to your Model 100 and get a day-by-day listing of all your

appointments and expenses. This is especially useful for reporting on a trip's progress or for itemizing expenses.

CONNECTING THE HARDWARE

To use the Travel Master program, your Model 100 needs at least 16K of RAM with 11,000 bytes of free memory. Remember that the size of the files that hold your schedule and expense information is limited by the amount of free memory. When you turn on the computer's power, look at the lower-right corner of the display to check the memory. If the number is below 500, either KILL some files or programs you don't need or save them onto cassette tape and then delete them from the Model 100's Main Menu.

To print out both schedules and expenses, connect the Model 100 to a parallel printer. To do this, you'll need the special Model 100 Parallel Printer Cable that connects the computer to any Radio Shack parallel printer as well as to many other parallel printers.

Before making any connections between a printer and the Model 100, be sure that all system components are turned *off*. Also, when connecting the printer cable to the computer, be sure the cable exits down from the connector. See your Model 100 owner's manual for more details.

When turning on the power to the system, first switch on the printer and then turn on the Model 100.

ENTERING THE SOFTWARE

Travel Master is a BASIC program, so you'll need to move the cursor to the word BASIC (on the Model 100's Main Menu) and press ENTER. The computer will display copyright information and the OK prompt, followed by a blinking cursor. At that point, type in the program exactly as it is listed on the following pages.

Since the program is fairly long, we've divided it, for your convenience, into shorter sections. The text that follows each module explains how that part of the program works. Programmers or students will find the descriptions useful. Understanding how the program works will help you customize it for your own needs. If you don't care how the program works—that is, if you just want it *to work*—you can skip the descriptions and type in the next module.

Once you have typed in the entire program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "TRAVEL" ENTER

We also suggest that you save the program onto cassette tape at that time. Connect a cassette recorder to the Model 100 (see your owner's manual for details on volume control) and simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Travel Master program is loaded into memory, then type

CSAVE "TRAVEL" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as TRAVEL.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line with the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type the entire program at one sitting, go ahead and save what you do type. Later, load those portions that you previously typed in, and then type in the rest of the program. Finally, save it again under the same name.

If you do not have a printer, you can omit typing Modules 3-A and 5-B, which provide printouts on expenses and schedules. (This sort of option is one reason the program was written in modular form.) If you do not type in these two modules, you must be careful to specify only S or s (for screen) when the program prompts you PRINT TO SCREEN OR PRINTER? (S/P). Typing P (for printer) will cause the program to stop executing and the BASIC OK prompt to return.

Once you've run the program, two data files, TRPSCH.DO and TRPEXP.DO, will be listed on the Model 100 Main Menu as well. Do *not* kill these files; they contain the information you've typed in.

Module 1: Main Driver This is the initialization section and main driver routine. This section defines the function keys, sets up the normal/reverse video functions, and limits the maximum file

count. It also displays the Travel Master menu and jumps to an appropriate subroutine, determined by what you type in. If you select the MENU option (by pressing F8), the program first resets the Function Key definitions before returning to the Model 100 Main Menu.

```

5 ' *** Travel Master -- Copyright 1983 Sayre
  & Erickson ***
10 'Module 1 -- Main Driver
20 CLEAR 500
30 MAXFILES=2: DEFINT A-Z
40 RV$=CHR$(27) + "p": NV$=CHR$(27) + "q"
50 KEY1,"N": KEY2,"S": KEY3,"": KEY4,"":
  KEY5,"": KEY6,"": KEY7,"": KEY8,"M"
60 CLS: PRINT NV$;
70 PRINT "Welcome to TRAVEL -- The Travel
  Master"
80 PRINT "      Scheduler              Expense Handler"
90 PRINT@ 280, "Next Select";
100 PRINT@ 315, "Menu";
110 OP$(0)= "Enter": PP(0)=84
120 OP$(1)= "Print": PP(1)=124
130 OP$(2)= "Enter": PP(2)=105
140 OP$(3)= "Print": PP(3)=145
150 R=0
160 FOR I=0 TO 3: PRINT@ PP(I),NV$;OP$(I);:
  NEXT I
170 PRINT@ PP(R),RV$;OP$(R);NV$;
180 A$=INKEY$: IF A$="" THEN 180
190 IF A$= "N" THEN R=(R+1)MOD4: GOTO 160
200 IF A$= "M" THEN CALL 23164,0,23366: CALL
  27795: MENU
210 IF A$ <> "S" THEN BEEP: GOTO 160
220 ON R+1 GOSUB 240,650,1640,2050
230 GOTO 50

```

Module 2: Schedule Entry This subroutine lets you enter an appointment or another event into the trip schedule. For this data entry, the subroutine calls the Keyboard Entry routine (Module 6), which inputs characters one at a time, stores them in a buffer, and displays them on the screen.

```

240 'Module 2 -- Schedule entry
250 ON ERROR GOTO 610
260 CLS: PRINT NV$;

```

```

270 PRINT@ 0, "Date of Event: __/__/__";
280 PRINT@ 40, "Time of Event: __:__:__";
290 PRINT@ 80, "Location: " + STRING$(30," ");
300 PRINT@ 120, "Notes: " + STRING$(33,"_");
310 PRINT@ 280, "Rcrd Cncl";
320 BF$=STRING$(73," ")
330 CC(0)=1: PP(0)=15
340 CC(1)=1: PP(1)=18
350 CC(2)=1: PP(2)=21
360 CC(3)=1: PP(3)=55
370 CC(4)=1: PP(4)=58
380 CC(5)=29: PP(5)=90
390 CC(6)=32: PP(6)=127
400 MW=6: MB=72: WD=0: BP=0: CH=0
410 GOSUB 3250
420 IF C$=CHR$(2) GOTO 580
430 OPEN "TRPSCH" FOR INPUT AS 1
440 OPEN "TMPSCH" FOR OUTPUT AS 2
450 S1$=MID$(BF$,5,2) + MID$(BF$,1,4) +
    MID$(BF$,7,4)
460 IF EOF(1) THEN PRINT#2,BF$;: GOTO 540
470 IP$=INPUT$(73,1)
480 S2$=MID$(IP$,5,2) + MID$(IP$,1,4) +
    MID$(IP$,7,4)
490 IF S1$ < S2$ THEN PRINT#2,BF$;: PRINT
    #2,IP$;ELSE PRINT#2,IP$;: GOTO 460
500 IF EOF(1) GOTO 540
510 IP$=INPUT$(73,1)
520 PRINT#2,IP$;
530 GOTO 500
540 CLOSE 1,2
550 KILL "TRPSCH.DO"
560 NAME "TMPSCH.DO" AS "TRPSCH.DO"
570 GOTO 600
580 PRINT@ 292,NV$; "Operation cancelled!";
590 FOR I=1 TO 500: NEXT I
600 RETURN
610 IF ERR <> 52 THEN PRINT@ 240, "Error
    #";ERR;" in line ";ERL;: STOP
620 OPEN "TRPSCH.DO" FOR OUTPUT AS 1
630 CLOSE
640 RESUME

```

After you enter the data, the subroutine will read in the TRPSCH.DO file, record by record. It then compares the date or time of the newly entered record with those of the record just read.

If the new record has a date and time earlier than that of the record just read in, it writes the new record to the TMPSCH.DO file before writing the old record into the file.

If the new record has a date or time later than that of the record just read in, the routine writes only the old record to the TMPSCH.DO file. (In case of ties, the new record is treated as if it had a later date or time.)

The routine copies the old records straight to the TMPSCH.DO file without comparison. When the subroutine has completed the copy and insertion process, it deletes the old schedule file, TRPSCH.DO, and the former temporary file, TMPSCH.DO, is renamed TRPSCH.DO.

If the schedule file TRPSCH.DO does not exist, the subroutine first creates it and then proceeds as just described. The subroutine does no error checking on the input data; you are responsible for entering valid dates, times, and so on.

Module 3: Display or Print Out Schedule This subroutine lets you display on the screen or print out on a printer any or all of the TRPSCH.DO file. You may specify a starting date, ending date, two special topics (from the LOCATION or NOTES fields in the TRPSCH.DO record), and whether you want the information displayed on the screen or on the printer. If you do not specify otherwise, the routine starts with the earliest date, finishes with the latest date, searches for no special topics, and displays the data on the screen.

```

650 'Module 3 -- Print schedule
660 ON ERROR GOTO 610
670 CC(0)=1: PP(0)=20
680 CC(1)=1: PP(1)=23
690 CC(2)=1: PP(2)=26
700 CC(3)=1: PP(3)=58
710 CC(4)=1: PP(4)=61
720 CC(5)=1: PP(5)=64
730 CC(6)=20: PP(6)=99
740 CC(7)=0: PP(7)=154
750 CLS: PRINT NV$;
760 PRINT@ 0, "Starting with date: _/_/_";
770 PRINT@ 40, "Ending with date: _/_/_";
780 PRINT@ 80, "Specific topic(s): " +
    STRING$(21," ");
790 PRINT@ 120, "Print to Screen or Printer
    (S/P): _";

```

```

800 PRINT@ 280, "Print Cncl";
810 KEY1,"N": KEY2,"C": KEY8,""
820 BF$=STRING$(34," ")
830 BP=0: CH=0: WD=0: MB=33: MW=7
840 GOSUB 3250
850 IF C$=CHR$(2) THEN PRINT@ 292, "Operation
      cancelled!";: GOTO 1110
860 SD$=MID$(BF$,5,2) + MID$(BF$,1,4)
870 ED$=MID$(BF$,11,2) + MID$(BF$,7,4)
880 IF ED$="      " THEN ED$="991231"
890 TC=0
900 TP$(1)="": TP$(2)=""
910 PT=INSTR(13,BF$,CHR$(255))
920 IF PT=0 THEN 1070
930 TP$(1)=MID$(BF$,13,PT-13)
940 FOR I=1 TO LEN(TP$(1))
950 IF MID$(TP$(1),I,1) < "a" OR MID$(TP$(1),
      I,1) > "z" THEN 970
960 MID$(TP$(1),I,1)=CHR$(ASC(MID$(TP$(1),
      I,1))-32)
970 NEXT I
980 NP=PT+1: TC=1
990 PT=INSTR(NP,BF$,CHR$(255))
1000 IF PT=0 THEN 1070
1010 TP$(2)=MID$(BF$,NP,PT-NP)
1020 FOR I=1 TO LEN(TP$(2))
1030 IF MID$(TP$(2),I,1) < "a" OR MID$(TP$(2),
      I,1) > "z" THEN 1050
1040 MID$(TP$(2),I,1)=CHR$(ASC(MID$(TP$(2),I,
      1))-32)
1050 NEXT I
1060 TC=2
1070 OPEN "TRPSCH" FOR INPUT AS 1
1080 IF MID$(BF$,34,1)="P" OR MID$(BF$,34,1)=
      "p" THEN GOSUB 1130 ELSE GOSUB 1310
1090 CLOSE
1100 PRINT@ 292,NV$; "End of file";
1110 FOR I=1 TO 1000: NEXT I
1120 RETURN

```

To specify one or two special topics, you must type them onto the TOPICS line and terminate each string with an ASCII 255 (you do so by pressing SHIFT GRPH C simultaneously). You can enter these strings and any other ASCII characters in either uppercase or lowercase letters with the exception of ASCII 255. The subroutine converts any entered lowercase letter in a string and does the same when it inputs data records before comparing strings.

Once you have selected PRINT, the subroutine calls one of two routines that send the data to the printer or the screen.

If the TRPSCH.DO file does not exist, the subroutine creates it as a null file and proceeds as normal. (In this case, since the file is empty, the subroutine returns immediately to the Travel Master menu.)

Module 3-A: Print Schedule File on Printer This subroutine formats the data in TRPSCH.DO into an 80-column printer format. It calls on another subroutine (Module 3-C) to decide whether a given record meets your specified criteria. That subroutine returns either when it has a valid record (PF=1) or when it has reached the end of the file (PF=0).

```

1130 'Module 3-A -- Print the schedule file on
      the printer
1140 OPEN "LPT:" FOR OUTPUT AS 2
1150 CR$=CHR$(13): FF$=CHR$(12)
1160 PRINT#2,CR$;CR$;TAB(33); "Trip Schedule";
      CR$
1170 PRINT #2,"  Date    Time    Location";TAB(27);
      "Notes"
1180 LC=6
1190 OD$=""
1200 GOSUB 1480
1210 IF PF=0 THEN 1300
1220 ND$=MID$(BF$,1,2) + "/" + MID$(BF$,3,2) +
      "/" + MID$(BF$,5,2)
1230 IF ND$=OD$ THEN ND$=" " ELSE OD$=ND$:
      LC=LC+1: PRINT#2," "
1240 PRINT#2,ND$;
1250 PRINT#2," " + MID$(BF$,7,2) + ":" + MID$
      (BF$,9,2) + " ";
1260 PRINT#2,MID$(BF$,11,30);" ";
1270 PRINT#2,MID$(BF$,41,33)
1280 LC=LC+1
1290 IF LC < 60 THEN PRINT FF$: GOTO 1200
      ELSE 1160
1300 RETURN

```

This subroutine separates each day's events from the next with a blank line, and if the TRPSCH.DO file contains enough records, it will issue a form feed, reprint the headers, and start printing on the next page.

```

1310 'Module 3-B -- Display the schedule file
      on the screen
1320 CLS: PRINT NV$;
1330 KEY1,"N": KEY2,"Q"
1340 PRINT "Date of Event:"
1350 PRINT "Time of Event:"
1360 PRINT "Location:"
1370 PRINT "Notes: "
1380 PRINT@ 280,"Next Quit";
1390 GOSUB 1480
1400 IF PF=0 THEN PRINT@ 292, "End of file";:
      GOTO 1470
1410 PRINT@ 15,LEFT$(BF$,2) + "/" + MID$
      (BF$,3,2) + "/" + MID$(BF$,5,2);
1420 PRINT@ 55,MID$(BF$,7,2) + ":" +
      MID$(BF$,9,2);
1430 PRINT@ 90,MID$(BF$,11,30);
1440 PRINT@ 127,MID$(BF$,41,33);
1450 A$=INKEY$: IF A$="N" THEN 1390
1460 IF A$ <> "Q" THEN 1450
1470 RETURN

```

Module 3-B: Display Schedule File on the Screen This subroutine displays the requested schedule data onto the Model 100 screen. It calls on a separate subroutine (Module 3-C) to decide whether a given record in TRPSCH.DO meets your specified criteria for listing. This second subroutine returns either when it has a valid record (PF=1) or when it has reached the end of the file (PF=0).

The main subroutine in this module then displays the data, one record at a time. You press either F1, which makes the subroutine go to the next record or F2, which makes the subroutine return to the Travel Master menu.

```

1480 'Module 3-C -- Validate input
1490 IF EOF(1) THEN PF=0: GOTO 1630
1500 BF$=INPUT$(73,1): PF=1
1510 BD$=MID$(BF$,5,2) + MID$(BF$,1,4)
1520 IF BD$ < SD$ OR BD$ > ED$ THEN 1480
1530 IF TC=0 GOTO 1630
1540 TB$=BF$
1550 FOR I=11 TO 83
1560 LC$=MID$(TB$,I,1)
1570 IF LC$ < "a" OR TC$ > "z" THEN 1590
1580 MID$(TB$,I,1)=CHR$(ASC(LC$)-32)

```

```

1590 NEXT I
1600 FOR I=1 TO TC
1610 IF INSTR(1,TB$,TP$(I))=0 THEN 1480
1620 NEXT I
1630 RETURN

```

Module 3-C: Validate Input This subroutine reads in records from the TRPSCH.DO file. It then compares each record's contents against the criteria you specified in Module 3. If a record meets the requirements (that is, the date is in the correct range, or any of the specified topics match, or both), the subroutine sets the print flag, PF, equal to 1 and returns to the calling routine (either Module 3-A or 3-B).

If a record doesn't meet the requirements, the subroutine continues to read in new records until it either finds a valid record or reaches the end of the TRPSCH.DO file. When the routine reaches the end of a file, it sets PF equal to 0 and returns to the calling routine.

Module 4: Enter a Trip Expense This subroutine lets you enter an expense into the EXPENSE file. For the data entry, the subroutine calls the Keyboard Entry routine, which inputs characters one at a time, stores them in a buffer, and displays them on a screen.

```

1640 'Module 4 -- Enter a trip expense
1650 ON ERROR GOTO 2010
1660 CLS: PRINT NV$;
1670 PRINT "Account Number: ";
1680 PRINT@ 25, "Date: __/__/__";
1690 PRINT@ 40, "Amount: $____.____";
1700 PRINT@ 62, "Paid With: _____";
1710 PRINT@ 80, "Notes: " + STRING$(33,"_");
1720 PRINT@ 280, "Rcrd Cncl";
1730 BF$=STRING$(56," ")
1740 PP(0)=16: CC(0)=3
1750 PP(1)=31: CC(1)=1
1760 PP(2)=34: CC(2)=1
1770 PP(3)=37: CC(3)=1
1780 PP(4)=49: CC(4)=4
1790 PP(5)=55: CC(5)=1
1800 PP(6)=73: CC(6)=5
1810 PP(7)=87: CC(7)=32
1820 CH=0: WD=0: BP=0: MW=7: MB=55
1830 GOSUB 3250

```

```

1840 IF C$=CHR$(2) THEN PRINT@ 295,NV$;
      "Operation cancelled!";: GOTO 1990
1850 OPEN "TRPEXP" FOR INPUT AS 1
1860 OPEN "TMPEXP" FOR OUTPUT AS 2
1870 S1$=MID$(BF$,9,2) + MID$(BF$,5,4) +
      MID$(BF$,1,4)
1880 IF EOF(1) THEN PRINT#2,BF$;: GOTO 1960
1890 IP$=INPUT$(56,1)
1900 S2$=MID$(IP$,9,2) + MID$(IP$,5,4)+
      MID$(IP$,1,4)
1910 IF S1$ < S2$ THEN PRINT#2,BF$;: PRINT #2,
      IP$;ELSE PRINT#2,IP$;: GOTO 1880
1920 IF EOF(1) GOTO 1960
1930 IP$=INPUT$(56,1)
1940 PRINT#2,IP$;
1950 GOTO 1920
1960 CLOSE 1,2
1970 KILL "TRPEXP.DO"
1980 NAME "TMPEXP.DO" AS "TRPEXP.DO"
1990 FOR I=1 TO 1000: NEXT I
2000 RETURN
2010 IF ERR <> 52 THEN PRINT@ 240, "Error #";
      ERR;" in line #";ERL: STOP
2020 OPEN "TRPEXP" FOR OUTPUT AS 1
2030 CLOSE 1
2040 RESUME

```

After you have entered the data, the subroutine reads in the TRPEXP.DO file, record by record. It then compares the date and account number of the newly entered record with those of the record just read. If the new record has an earlier date and lower account number than those of the record just read in, the subroutine writes the new record to the TRPEXP.DO file before writing the old record into the file. If the date and account number of the new record are greater than those of the record just read in, the routine writes only the old record to the TRPEXP.DO file. (In case of ties, the new record is assumed to have the later date and higher account number.)

After the new record has been inserted, the routine copies the old records straight to the TMPEXP.DO file without comparison. When the subroutine has completed the copy and insertion process, it deletes the old schedule file, TRPEXP.DO, and the former temporary file, TMPEXP.DO, is renamed TRPEXP.DO.

If the expense file, TRPEXP.DO, does not exist, the subroutine

first creates it as a null file and then begins normal processing. Otherwise, the subroutine does no error checking on the data; you are responsible for inputting numbers when required.

Module 5: Display or Print Trip Expenses This subroutine lets you display or print out any or all of the TRPEXP.DO file. You may specify a starting date, ending date, starting account number, ending account number, two special topics (which you select from the AMOUNT, PAID WITH, or NOTES fields in the TRPSCH.DO record), and whether you want the output to be sent to the screen or to the printer. Unless you specify otherwise, the routine starts with the earliest date and lowest account number, finishes with the latest date and highest account number, searches for no special topics, and displays the data on the screen.

```

2050 'Module 5 -- Display or print trip
      expenses
2060 ON ERROR GOTO 2010
2070 CLS: PRINT NV$;
2080 PRINT@ 0, "Starting with Account Number:
      ";
2090 PRINT@ 40, "Ending with Account Number:
      ";
2100 PRINT@ 80, "Starting Date: _/_/";
2110 PRINT@ 120, "Ending Date: _/_/";
2120 PRINT@ 160, "Specific Topic(s): " +
      STRING$(21, " ")
2130 PRINT@ 200, "Print to Screen or Printer
      (S/P): _";
2140 PRINT@ 280, "Print Cncl";
2150 PP(0)=30: CC(0)=3
2160 PP(1)=68: CC(1)=3
2170 PP(2)=95: CC(2)=1
2180 PP(3)=98: CC(3)=1
2190 PP(4)=101: CC(4)=1
2200 PP(5)=133: CC(5)=1
2210 PP(6)=136: CC(6)=1
2220 PP(7)=139: CC(7)=1
2230 PP(8)=179: CC(8)=20
2240 PP(9)=230: CC(10)=0
2250 CH=0: WD=0: BP=0: MW=9: MB=41
2260 BF$=STRING$(42, " ")
2270 GOSUB 3250
2280 IF C$=CHR$(2) THEN PRINT@ 300, "Operation
      cancelled!";: GOTO 2580

```

```

2290 SD$=MID$(BF$,13,2) + MID$(BF$,9,4)
2300 ED$=MID$(BF$,19,2) + MID$(BF$,15,4)
2310 IF ED$="      " THEN ED$="991231"
2320 SA$=MID$(BF$,1,4)
2330 EA$=MID$(BF$,5,4)
2340 IF EA$="      " THEN EA$="ZZZZ"
2350 TC=0
2360 TP$(1)="": TP$(2)="
2370 PT=INSTR(13,BF$,CHR$(255))
2380 IF PT=0 THEN 2530
2390 TP$(1)=MID$(BF$,21,PT-21)
2400 FOR I=1 TO LEN(TP$(1))
2410 IF MID$(TP$(1),I,1) < "a" OR MID$(TP$(1),
      I,1) > "z" THEN 2430
2420 MID$(TP$(1),I,1)=CHR$(ASC(MID$(TP$(1),
      I,1))-32)
2430 NEXT I
2440 NP=PT+1: TC=1
2450 PT=INSTR(NP,BF$,CHR$(255))
2460 IF PT=0 THEN 2530
2470 TP$(2)=MID$(BF$,NP,PT-NP)
2480 FOR I=1 TO LEN(TP$(2))
2490 IF MID$(TP$(2),I,1) < "a" OR MID$(TP$(2),
      I,1) > "z" THEN 2510
2500 MID$(TP$(2),I,1)=CHR$(ASC(MID$(TP$(2),I,
      1))-32)
2510 NEXT I
2520 TC=2
2530 OPEN "TRPEXP" FOR INPUT AS 1
2540 IF MID$(BF$,42,1)="P" OR MID$(BF$,42,1)=
      "p" THEN GOSUB 2850 ELSE GOSUB 2590
2550 PRINT@ 300,NV$; "End of file";
2560 FOR I=1 TO 1000: NEXT I
2570 CLOSE
2580 RETURN

```

To specify one or two special topics, you must type them onto the TOPICS line and terminate each string with an ASCII 255 (this is a SHIFT GRPH C). As before, these strings may be either uppercase or lowercase letters, or any other ASCII character except ASCII 255.

Once you've selected PRINT, the data is printed or displayed on the screen according to your instructions.

If the TRPEXP.DO does not exist, the subroutine creates it as a null file and then proceeds as normal. (Again, since in this case the

file is empty, the subroutine returns immediately to the Travel Master menu.)

Module 5-A: Display Expenses on Screen This subroutine displays the requested expense data on the Model 100 screen (after you type S when prompted). It calls on a separate subroutine (Module 5-C) when a record you have chosen in TRPSCH.DO meets your specified criteria for listing. That subroutine returns either when it has a valid record (PF=1) or when it has reached the end of the file (PF=0).

```

2590 'Module 5-A -- Display expenses on the
      screen
2600 KEY1,"N": KEY2,"Q": KEY8,""
2610 CLS: PRINT NV$;
2620 PRINT@ 0, "Account Number:";
2630 PRINT@ 25, "Date:";
2640 PRINT@ 40, "Amount:$";
2650 PRINT@ 62, "Paid With:";
2660 PRINT@ 80, "Notes: ";
2670 PRINT@ 200, "Running Total:$"
2680 PRINT@ 280, "Next Quit";
2690 TT!=0
2700 GOSUB 3080
2710 IF PF=0 GOTO 2830
2720 PRINT@ 16,MID$(BF$,1,4);
2730 PRINT@ 31,MID$(BF$,5,2) + "/" + MID$(BF$,
      7,2) + "/" + MID$(BF$,9,2);
2740 AM!=VAL(MID$(BF$,11,7))/100
2750 TT!=TT!+AM!
2760 PRINT@ 49,USING"#####.##";AM!;
2770 PRINT@ 73,MID$(BF$,18,6);
2780 PRINT@ 87,MID$(BF$,24,33);
2790 PRINT@ 215,USING"#####.##";TT!
2800 A$=INKEY$
2810 IF A$="N" THEN 2700
2820 IF A$ <> "Q" THEN 2800
2830 CLOSE 1
2840 RETURN

```

The subroutine then displays the previously stored data one record at a time, along with the running total for all displayed record expenses. To see the next record, press F1. To quit before the file has finished, press F2.

Module 5-B: Display Expenses on Printer This subroutine formats the data in TRPEXP.DO into an 80-column printer format. It calls on the subroutine of Module 5-C to decide whether a given record meets your specified criteria. If the input buffer BF\$ contains a valid record, that subroutine returns a value of 1 in the print flag, PF; if the subroutine encounters the end of the file with no more records to print, PF contains a 0.

```

2850 'Module 5-B -- Display expenses on
      the printer
2860 OPEN "LPT:" FOR OUTPUT AS 2
2870 TT!=0: OD$=""
2880 PRINT#2,CR$;CR$;TAB(33); "Expense
      Report";CR$
2890 PRINT#2,TAB(11); "Account   Paid"
2900 PRINT#2,"   Date       Number   With
      Notes";TAB(32);"Amount       Total"
2910 LC=7
2920 GOSUB 3080
2930 IF PF=0 GOTO 3070
2940 ND$=MID$(BF$,5,2) + "/" +
      MID$(BF$,7,2) + "/" + MID$(BF$,9,2)
2950 IF ND$=OD$ THEN ND$="          " ELSE
      OD$=ND$: LC=LC+1: PRINT#2,""
2960 PRINT#2,ND$ + " ";
2970 PRINT#2,MID$(BF$,1,4) + " ";
2980 PRINT#2,MID$(BF$,18,6);" ";
2990 PRINT#2,MID$(BF$,24,33);
3000 AM!=VAL(MID$(BF$,11,7))/100
3010 TT!=TT!+AM!
3020 PRINT#2,USING"#####.##";AM!;
3030 PRINT#2," ";
3040 PRINT#2,USING"#####.##";TT!
3050 LC=LC+1
3060 IF LC < 60 GOTO 2920 ELSE GOTO 2880
3070 RETURN

```

This subroutine separates each day's events from the next with a blank line; if the TRPSCH.DO file contains enough records, it will issue a form feed, reprint the headers, and start printing on the next page. Along with the amount of each expense, the subroutine prints out a running total of all printed records.

Module 5-C: Validate Input This subroutine reads in records from the TRPEXP.DO file. It then compares each record's con-

tents against the criteria specified by you (in Module 5). If a record meets the requirements (that is, date in the correct range, or a match of any specified topics, or both), it sets the print flag, PF, equal to 1 and returns to the calling routine (either Module 5-A or 5-B).

```

3080 'Module 5-C -- Validate input
3090 IF EOF(1) THEN PF=0: GOTO 3240
3100 BF$=INPUT$(56,1): PF=1
3110 IF MID$(BF$,1,4) < SA$ OR
      MID$(BF$,1,4) > EA$ GOTO 3080
3120 ID$=MID$(BF$,9,2) + MID$(BF$,5,4)
3130 IF ID$ < SD$ OR ID$ > ED$ GOTO 3080
3140 IF TC=0 GOTO 3240
3150 TB$=BF$
3160 FOR I=11 TO 55
3170 LC$=MID$(TB$,I,1)
3180 IF LC$ < "a" OR TC$ > "z" THEN 3200
3190 MID$(TB$,I,1)=CHR$(ASC(LC$)-32)
3200 NEXT I
3210 FOR I=1 TO TC
3220 IF INSTR(1,TB$,TP$(I))=0 THEN GOTO
      3080
3230 NEXT I
3240 RETURN

```

If a record doesn't meet the requirements, the subroutine continues to read in new records until either it finds a valid record or it reaches the end of the TRPEXP.DO file. When the routine reaches the end of a file with all valid records printed, it sets the PF flag equal to 0 and returns to the calling routine.

Module 6: Keyboard Input Routine This subroutine controls data entry for all of the other subroutines of the program. When you type an entry, this routine expects that the calling program has defined a buffer, BF\$, which is MB+1 characters long. In addition, for each substring that makes up BF\$, the subroutine expects a character count (the substring's length 1) for each word, or substring CC(n), as well as a starting print position, PP(n). It also expects that there are MW+1 total words in BF\$.

```

3250 'Module 6 -- Keyboard input routine
3260 KEY1,CHR$(1): KEY2,CHR$(2): KEY8,""
3270 AS$=MID$(BF$,BP+1,1)
3280 IF AS$=" " THEN AS$="_"
3290 PRINT@ PP(WD) + CH, RV$;AS$;

```

```

3300 C$=INKEY$: IF C$="" THEN 3300
3310 IF C$=CHR$(28) THEN GOSUB 3470
3320 IF C$=CHR$(29) THEN GOSUB 3390
3330 IF C$ > CHR$(31) THEN GOSUB 3670
3340 IF C$=CHR$(8) THEN GOSUB 3780
3350 IF C$=CHR$(27) THEN GOSUB 3550
3360 IF C$=CHR$(13) THEN GOSUB 3610
3370 IF C$=CHR$(1) OR C$=CHR$(2) THEN
      RETURN
3380 GOTO 3270

```

Each time you press a key, the subroutine analyzes it and takes appropriate action. It echoes most characters as they are, except for spaces, which it echoes as underlining. The subroutine uses its own cursor, which is the reverse video version of the character in the buffer BF\$ that the buffer pointer BP points to.

To exit the routine, you must press F1, which is defined as an ASCII 1 and which signals the calling party that the data is good, or F2, which is defined as an ASCII 2 and which signals the calling party that the data should be ignored. Other control keys that the subroutine accepts are ENTER, BKSP, ESC, -, and -. Any other control keys are ignored.

Module 6-A: Left Arrow Processing This subroutine processes a left arrow input so that pressing the - key moves the cursor one space to the left of its current position, updating the current print position and buffer pointer. If pressing - moves the cursor to the last letter of the previous word, the word count is updated, as are the buffer pointer and print position. If the left arrow is pressed when the cursor is on the first word of the screen, the subroutine "wraps around" to the last position of the last word on the screen.

```

3390 'Module 6-A -- Left arrow
      processing
3400 PRINT@ PP(WD) + CH,NV$,AS$;
3410 CH=CH-1: BP=BP-1
3420 IF CH >=0 THEN GOTO 3460
3430 WD=WD-1
3440 IF WD < 0 THEN WD=MW: BP=MB
3450 CH=CC(WD)
3460 RETURN

```

Module 6-B: Right Arrow Processing This subroutine processes a right arrow input so that pressing the → key moves the cursor one space to the right of its current position, updating the current print position and buffer pointer. If pressing → moves the cursor to a new word, the word count is updated in addition to the print position and the buffer pointer. If the cursor is on the last word on the screen and the right arrow is pressed, the cursor and pointers “wrap around” to the beginning of the first word.

```

3470 'Module 6-B -- Right arrow
      processing
3480 PRINT@ PP(WD) + CH,NV$,AS$;
3490 CH=CH+1: BP=BP+1
3500 IF CH <= CC(WD) GOTO 3540
3510 WD=WD+1
3520 IF WD > MW THEN WD=0: BP=0
3530 CH=0
3540 RETURN

```

Module 6-C: ESC Key Processing This subroutine processes the pressing of the ESC (escape) key. It resets the current print position to the start of the current word, updates the buffer pointer, and erases the current word, both on screen and in the buffer.

```

3550 'Module 6-C -- Escape key processing
3560 BP=BP-CH
3570 CH=0
3580 MID$(BF$,BP+1,CC(WD)+1) =
      STRING$(CC(WD)+1," ")
3590 PRINT@ PP(WD) + CH,NV$;
      STRING$(CC(WD)+1,"_")
3600 RETURN

```

Module 6-D: ENTER Key Processing This subroutine processes the pressing of the ENTER key. It updates the cursor print position to the start of the next word and updates the buffer pointer. If the cursor is on the last word on the screen and ENTER is pressed, the subroutine “wraps around” to the first word on the screen.

```

3610 'Module 6-D -- Enter key processing
3620 PRINT@ PP(WD) + CH,NV$,AS$;
3630 BP=BP + (CC(WD)-CH) + 1: WD=WD+1
3640 IF WD > MW THEN WD=0: BP=0
3650 CH=0
3660 RETURN

```

Module 6-E: Printable Letter Processing This subroutine processes the pressing of a printable character (any character higher than ASCII 31). It echoes the character at the current print position, moves the character into the buffer, and then changes the current print position by one increment. If this involves moving to a new word, it updates the word count also.

```

3670 'Module 6-E -- Printable letter
      processing
3680 MID$(BF$,BP+1,1)=C$
3690 BP=BP + 1
3700 IF C$=" " THEN C$=""
3710 PRINT@ PP(WD) + CH,NV$;C$;
3720 CH=CH+1
3730 IF CH <= CC(WD) GOTO 3770
3740 WD=WD+1
3750 IF WD > MW THEN WD=0: BP=0
3760 CH=0
3770 RETURN

```

All characters are echoed as is, except the space character (ASCII 32), which is echoed as an underline (although it is stored in the buffer as a space).

Module 6-F: Backspace Processing This subroutine processes the pressing of the BKSP (backspace) key. It moves the cursor to the previous print position, erasing the previous character from the screen and from the buffer. It updates the current print position and buffer pointer and, if necessary, the word count.

```

3780 'Module 6-F -- Backspace processing
3790 PRINT@ PP(WD) + CH,NV$;AS$;
3800 BP=BP-1
3810 CH=CH-1
3820 IF CH >= 0 GOTO 3860
3830 WD=WD-1
3840 IF WD < 0 THEN WD=MW: BP=MB
3850 CH=CC(WD)
3860 MID$(BF$,BP+1,1)=" "
3870 RETURN

```

USING THE TRAVEL MASTER PROGRAM

Once you've typed in and saved the Travel Master program (in RAM and on cassette tape), return to the Model 100's Main Menu.

You'll see TRAVEL.BA listed on the menu. Press the space bar to position the cursor on the name TRAVEL.BA. Press ENTER to start the program.

Selecting a Travel Master Option

The Travel Master menu will then appear on your screen as shown in Figure 1-1. Note that the word ENTER (directly below SCHEDULER) is displayed in reverse video because the cursor is on it. Under both SCHEDULER and EXPENSE HANDLER you can either enter or print information.

To move the cursor from one option to the next, press F1 (labeled NEXT on the screen). As you press F1, the next option appears in reverse video, just as it does with the Model 100 Main Menu.

When you have moved to the option you want to select, press F2 (labeled SELECT on the screen).

Ending a Travel Master Session

When you've finished your Travel Master session and want to return to the Model 100 Main Menu, press F8 (labeled MENU on the screen). If you do not use this method of exiting from Travel Master, your function keys will be defined incorrectly and will not operate as expected with subsequent BASIC programs.

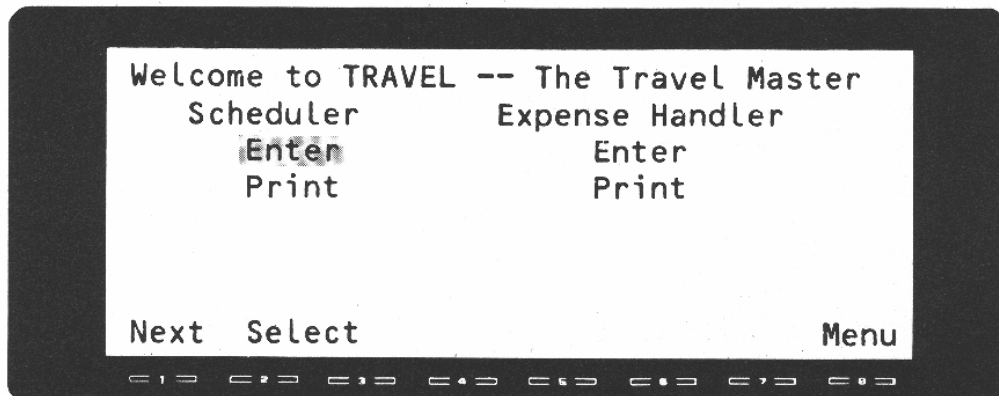


Figure 1-1. The Travel Master menu

Typing Information Into The Travel Master Program

All of the Travel Master routines use the same method of accepting the information you type in: each routine presents you with a "form" ready for you to fill out.

To Enter Information To enter expense and schedule information into the program, simply type in the data. The cursor advances every time you enter a character. When you have typed the last character of a particular word or number, the cursor will automatically advance to the start of the next word.

If You Type in a Wrong Character Don't worry about typing errors. If you make a mistake, use BKSP to erase the character. This key deletes the character immediately preceding the current cursor position.

If You Want to Delete a Word If you want to delete an entire word, place the cursor over it and press ESC. This key deletes all the characters in the current word or item and places the cursor where the word's first character had been.

Moving the Cursor You can use the left and right arrows to back up and advance the cursor, respectively. Unlike BKSP, these keys do not delete any characters. If you want to jump to the next word before you reach the end of the current word, press ENTER and the cursor will jump to the start of the next word.

Recording the Information When you are satisfied with the expenses or schedules you have entered, press F1 (to record the information into either the TRPEXP.DO or TRPSCH.DO data file).

If at any time you decide you don't want to complete the form (for instance, if you selected PRINT when you wanted to ENTER), you may press F2 to return to the Travel Master menu.

Correcting or Changing Recorded Information

Once you've recorded an expense or appointment and you discover that the entry is incorrect, you can fix the problem. Return

to the Model 100 Main Menu and position the cursor over TRPSCH.DO (for schedules) or TRPEXP.DO (for expenses) and press ENTER. What you will see is the information you typed in, but in a compressed format. Use the arrow keys to move the cursor to the mistake. Correct the mistake character by character. Adding or deleting too many characters can cause errors when you attempt to print or display the information. In other words, you can correct errors, but be careful.

Typing In a Scheduled Appointment or Event

To enter an appointment or event into a Schedule file (automatically created and named TRPSCH.DO), press F1 to move the cursor to the word ENTER (directly below the word SCHEDULER in the Travel Master menu), and press F2. The routine will display the Schedule Event Entry Form (see Figure 1-2).

Date of Event Type in the date of the event in *mm/dd/yy* format. For example, type **04/13/83** for April 13, 1983.

Time of Event Next, type in the time in 24-hour format. For instance, type **13:30** for 1:30 P.M.

Location Then enter the location of the event. This can be a city or place of business—whatever makes sense to you.

Notes Finally, type in any special notes about the event—a

Date of Event: __/__/__
 Time of Event: __:____
 Location: _____
 Notes: _____

Rcrd Cncl

Figure 1-2. Schedule Event Entry Form

flight number, the names of persons meeting with or accompanying you, and the like.

If, for example, Dave Lammert wanted to record his meeting with Jon Cobb at 1:00 P.M. on August 15, 1983 in Cobb's office, his form might look like Figure 1-3.

Recording Scheduled Appointments

When you have entered all the schedules you want, press F1. This stores your data (in a compressed format) in the file TRPSCH.DO.

The program stores first according to date, then according to time. Consequently, Dave's August 15 meeting with Jon Cobb is stored before his August 16 meeting with Ruth Cogley at 11:00 A.M., which in turn is stored before his August 16 appointment with Dr. Skinner at 1:00 P.M.

Cancelling an Entry

If you want to cancel the data before it is recorded, press F2 and you will return to the Travel Master menu.

Displaying and Printing Out Your Schedules

To display or print out any or all of your schedules, position the Travel Master menu cursor on the word PRINT (directly below

```

Date of Event: 08/15/83
Time of Event: 13:00
Location: Jon_Cobb's_office_--_Denver_
Notes: Meeting_on_pilots_____

Rcrd  Cncl
  
```

Figure 1-3. Schedule event entered

the word SCHEDULE) and press F2. The program will display the Schedule Print Form (see Figure 1-4).

Displaying Schedules by Date To display or print out a schedule, you can specify starting and ending dates. The program will print all events that begin on or after the starting date and on or before the ending date.

- If you leave the starting date blank, the program will start printing at the beginning of the file.
- If you leave the ending date blank, the program will print to the end of the file.

Displaying a Schedule by Topic The SPECIFIC TOPICS blank lets you indicate one or two Schedule Entry topics you want to see. For example, you may want to see all MEETINGS "WITH JIM," regardless of the date, but you may have no immediate interest in any APPOINTMENTS or LUNCHEONS.

To enter a specific topic (such as meetings), type in the topic and then press SHIFT GRPH C. This puts a half-solid graphics "block" at the end of the topic or word you typed in.

If you want to specify a second topic, type it in after the first graphics block and again press SHIFT GRPH C. For example, type MEETING JIM to see the list of all meetings with Jim. If you don't want to specify a second topic, simply press ENTER after the first graphics block.

If you don't want to specify any special topics, leave this space blank by simply pressing ENTER.

Starting with date: _/ _/ _
 Ending with date: _/ _/ _
 Specific topics(s): _____
 Print to Screen or Printer (S/P): _

 Print Cncl

Figure 1-4. Schedule Print Form

Printing the Appointment on the Screen or Printer The final input line on the form allows you to tell the program to display schedules on the Model 100 screen or to print them out on the printer.

- To display schedules on the screen, either type nothing and press ENTER, or type S or s.
- To print the information on the printer, type P or p.

For example, if you want to see all of the scheduled events from the beginning of the file until August 21 that involve MEETING, and you want the data to be printed on the printer, you might fill out the form as shown in Figure 1-5. Note that "meeting" is in lowercase. The program allows you to use uppercase, lowercase, or both.

If you have specified a printout of the schedule, make sure your printer is correctly connected to the Model 100 and then press F1. The program will print out the appointments you want in a format like that in Figure 1-6. The information will be printed out in the

```

Starting with date: __/__/__
Ending with date: 08/21/83
Specific topic(s):meeting
Print to Screen or Printer(S/P): p

Print Cncl
  
```

Figure 1-5. Printing out a specific topic

Trip Schedule			
Date	Time	Location	Notes
08/15/83	13:00	Jon Cobb's office--Denver	Meeting with pilots
	20:00	Vincent's Restura--Denver	Dinner with SS.
08/17/83	10:05	Denver Airport	AA #256

Figure 1-6. Format of schedule printout

```

Date of Event: 08/15/83
Time of Event: 13:00
Location: Jon Cobb's office -- Denver
Notes: Meeting on pilots
Next Quit

```

Figure 1-7. Format of schedule display

same order in which it was stored, from earliest to latest. When the end of the file is reached, the message END OF FILE will appear at the bottom of the screen and the Travel Master menu will return.

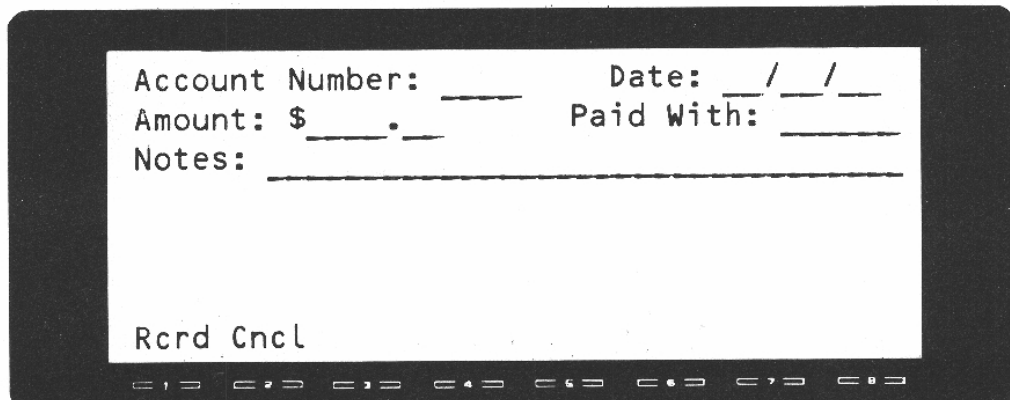
If you want to display the schedules on the Model 100 screen, press F1. The information will be displayed as in Figure 1-7. To see the next schedule, press F1 again. If you don't want to see any more schedules, press F2. When there are no more requested records in the file, an END OF FILE message will appear at the bottom of the screen and the Travel Master menu will reappear.

Typing In an Expense

To enter an expense into the Expense file (which has been automatically created by the program and named TRPEXP.DO), press F1 to move the cursor to the word ENTER, directly below the words EXPENSE HANDLER in the Travel Master menu, then press F2. The routine will display the Expense Entry Form. (See Figure 1-8.)

Account Number The first blank on the screen is for a four-digit account number. This number is arbitrary. You can use a standard set of numbers designated by your company, or you can make up your own numbering system. For example:

- 1000-level expenses may be meals, with 1100 for breakfasts, 1200 for lunches, and so on.
- 2000-level numbers may be transportation expenses, with 2100 for airlines, 2200 for car rentals, and so on.



Account Number: _____ Date: __/__/__
 Amount: \$ _____. Paid With: _____
 Notes: _____

Rcrd Cncl

1 2 3 4 5 6 7 8 9

Figure 1-8. Expense Entry Form

Date After you have entered the account number, fill in the date of the expense in *mm/dd/yy* format: for instance, **04/13/83** for April 13, 1983.

Amount Now complete the amount of the expense. There are six number spaces to fill. For amounts less than \$1000.00, keep the leading spaces blank by pressing the space bar or the arrow keys. For instance, to enter \$40.00, press the space bar twice, then type **4000** (the last two zeros will be to the right of the decimal point).

Paid With To fill in the blank labeled PAID WITH, type the form of payment, such as **Amex**, **VISA**, or the like for credit card charges, or **cash**, or **C#1000** for a check purchase with check number 1000.

Notes Finally, fill in the NOTES blank with information relevant to the expense (such as **AA Flight to Boston** or **Victoria Station lunch with Marie**).

For example, when Dave Lammert purchased a ticket on American Airlines flight #134, he filled out the form as shown in Figure 1-9.

Recording Expense Information

When you have entered all the information you want, press F1. This stores your data (in a compressed format) in a file called TRPEXP.DO.

The program stores the expense first according to date and

Account Number:2101 Date: 05/27/83
 Amount:\$ 256.85 Paid With: Amex_
 Notes:AA_#134_-To_Denver_for_pilot_review

Rcrd Cncl

Figure 1-9. Expense and event entered

then according to account number. Consequently, an expense on August 19, 1983 under account number 2100 comes before an expense on the same day under account number 3100, but after all expenses on August 18.

Cancelling an Entry

If you want to cancel the data before it is recorded in the file, press F2 and you will return to the Travel Master menu.

Displaying and Printing Out Your Expenses

To display or print out any or all of your expenses on the Travel Master menu, position the cursor to the word PRINT, directly below EXPENSE HANDLER, and press F2. The program will display the Expense Print Form (see Figure 1-10).

Starting with Account Number: ____
 Ending with Account Number: ____
 Starting Date: __/__/__
 Ending Date: __/__/__
 Specific Topic(s): _____
 Print to Screen/Printer (S/P): _

Print Cncl

Figure 1-10. Expense Print Form

Displaying Expenses by Account Number The first two blanks are for starting and ending account numbers. You can specify the lowest and highest account numbers for which you want to see expenses.

- If you leave the starting account number blank, the program will begin with the lowest account number in the file.
- If you leave the ending account number blank, the program will print up to the highest account number.

Displaying Expenses by Date Likewise, you may specify a starting and ending date for printing out expenses. The program will print all expenses that occurred on or after the starting date and before the ending date.

- If you leave the starting date blank, the program will start printing at the beginning of the file.
- If you leave the ending date blank, the program will print to the end of the file.

Displaying Expenses by Specific Topics The SPECIFIC TOPICS blank lets you indicate one or two particular topics for which you want to see the expense entry. Say, for example, you want to see all your expenses paid for with your VISA card. Type in the topic, **VISA**, then press SHIFT GRPH C. This puts a half-solid graphics block at the end of the topic. If you want to specify a second topic, type it in after the first graphics block, and again press SHIFT GRPH C; for instance, **VISA** ■ **Amex** ■.

If you don't want to specify a second topic, simply press ENTER.

Selecting Screen or Printer

The final blank on the form tells the program where to display the expense information.

- To display the information on the Model 100 screen, type nothing and press ENTER or type S or s.
- To print out the information on a printer, type P or p.

For example, if you want to see all meal expenses that were paid for with cash from August 15 through August 18, you might fill out the form as shown in Figure 1-11, where it is assumed that meal expenses range between account numbers 1000 and 1999.


```

Starting with Account Number: 1000
Ending with Account Number: 1999
Starting Date: 08/15/83
Ending Date: 08/18/83
Specific Topic(s): cash
Print to Screen or Printer (S/P): S
Print Cncl

```

Figure 1-11. Expense Print Form with all entries

Expense Record					
Date	Account Number	Paid With	Notes	Amount	Total
05/27/83	1100	cash	breakfast	8.00	8.00
	1200	cash	lunch	24.00	32.00
06/01/83	2100	Amex	AA. #512	256.50	286.50

Figure 1-12. Format of expense printout

(Again, note that specific topics can be in uppercase or lowercase or both.)

If you're printing out the information on a printer, make sure your printer is correctly connected to your Model 100, and then press F1. The program will search TRPEXP.DO for expenses that match what you have specified and print those records on the printer (see Figure 1-12). When it has reached the end of the file, it will briefly display the message END OF FILE at the bottom of the screen and return to the Travel Master menu.

If you want the information displayed on the Model 100 screen, press F1. When the program finds a matching record, it will display the data in the format in which you entered it (see Figure 1-13.) If you don't want to see any more records, press F2. To see the next expense within the range you specify, press F1. When the program has printed out all matching records, it will briefly display the message END OF FILE at the bottom of the screen and return to the Travel Master menu.

```

Account Number: 1100      Date: 05/27/83
Amount: $ 8.00           Paid With: cash_
Notes: breakfast_____

Running Total: $8.00

Next Quit

```

Figure 1-13. Format of expense display

OTHER ACTIVITIES

You might want to store the data files TRPEXP.DO and TRPSCH.DO on cassette tape and catalog them according to individual trips, months, or years. For instance, you might label one cassette tape **Expenses for January 1984**, another tape **San Francisco Expenses 4/84**, and so on. It would be wise to keep a printout of the expenses and schedules as well.

Don't be afraid to customize the program to suit your specific needs. (Before making any changes, however, you should make a master tape of the program.)

Again, if you don't have a printer and want to save memory space and typing, leave out those program modules that provide printed copies of expenses and schedules—namely, Modules 3-A and 5-B. If you do not type in these two modules, you must specify only **S** (for screen) when the program asks you **PRINT TO SCREEN OR PRINTER? (S/P)**. If you type **P** for printer, the program will stop execution and return to the BASIC OK prompt.

The Model 100 can also be used with printers other than Radio Shack's. You'll need to check your printer's operation manual for communications protocol (baud rate and the like) and to set the Model 100's to match. To use a serial printer with the Model 100 (Radio Shack does not recommend this), connect the printer to the RS-232C connector on the back of the computer and change lines 1140 and 2860 to **OPEN "COM:68E1E" FOR OUTPUT AS 2**. You can set the baud to a higher rate if necessary. See the OPEN statement in your Model 100 owner's manual for more details.

Getting Airline Information With the Model 100



Dave Lammert was doing so much commercial flying that whenever he went on a trip he carried his own copy of the airline schedule compendium (a book about the size of the Kansas City, Missouri, phone directory). However, even the most recent publication was always weeks out-of-date, for the airlines seemed to change schedules daily—if not hourly. It didn't take Dave long to realize that he needed a better way to arrange his flights. (Of course, Dave found this out the hard way. A long night of trying to get a flight from Chicago to Denver proved the point.) He needed to be able to tap into the airlines' "official" scheduling system so he

could obtain the most up-to-date information. Then he could go to the appropriate airline desk and book the flight he needed.

With a Model 100, a nearby phone, and a CompuServe account number, Dave could have flight information instantly. (If you don't know what information services such as CompuServe are or what they are useful for, see Appendix A of this book.)

Dave found out about CompuServe when he bought his Model 100 Modem Cable. Included in the package were two books — one describing CompuServe Information Service and the other describing Dow Jones News/Retrieval Information Service. Since CompuServe seemed more general, he subscribed to it first. He quickly discovered he could get weather information, newspapers and magazines, electronic mail, memos, and airline information through CompuServe.

The airline information is listed in the Official Airlines Guide (OAG), which provides schedules—updated weekly—for over 290,000 North American flights and a total of 820,000 flights worldwide on 640 airlines. The OAG also provides fare information that is updated daily.

Before he used the service, Dave was afraid that he might have to be a travel agent to understand the scheduling system, but the first time he logged onto the OAG he found out otherwise. It's quick and simple and saved him both time and money.

When you go on-line with the OAG, you're asked where you want to fly from. You type in the name of a city or an airport code (just like the ones on baggage tags). Next the OAG asks where you want to go. Again, just type in the name of a city or an airport code. You are then asked the date and time of day you want to fly. After you respond, a list of all scheduled flights from your point of departure to your destination will appear on the Model 100's display. You can also obtain fare information about any flight you specify.

When you use the OAG to obtain flight information, you incur costs that are added to your regular CompuServe charges. You will be billed by the OAG through your CompuServe account. You can also connect to the OAG via Tymnet or Telenet; each of these, however, requires a special OAG account number and password.

We will now describe how to communicate with the OAG through CompuServe.

CONNECTING THE HARDWARE

To use the OAG via CompuServe, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a modular jack telephone.
- A Model 100 Acoustic Cup set and a telephone (such as a pay phone).

If you're connecting the Model 100 directly to a telephone (such as in an office or hotel room), use the Model 100 Modem Cable and set up the system as shown in Figure 2-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG. (Both switches are on the left side of the computer as Figure 2-2 shows.)

If you're connecting the Model 100 to a pay phone, use the Model 100 Acoustic Cups and set up the system as shown in Figure 2-3. Be sure to set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

SETTING UP THE SOFTWARE

The next step is to set up the Model 100's communications software so that it is the same as CompuServe's (that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length). To set the Model 100 so that it matches CompuServe, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem rather than the Acoustic Cups, when the prompt STAT appears, type M7I1E and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP, move the Main Menu cursor to TELCOM, and press ENTER. Then press F3 for STAT. When the prompt STAT appears, type 37I1E and press ENTER.

LOGGING ON TO COMPUSEVERVE

The Model 100 and CompuServe should now be ready to "talk" to each other, and the TELCOM: prompt should be displayed.

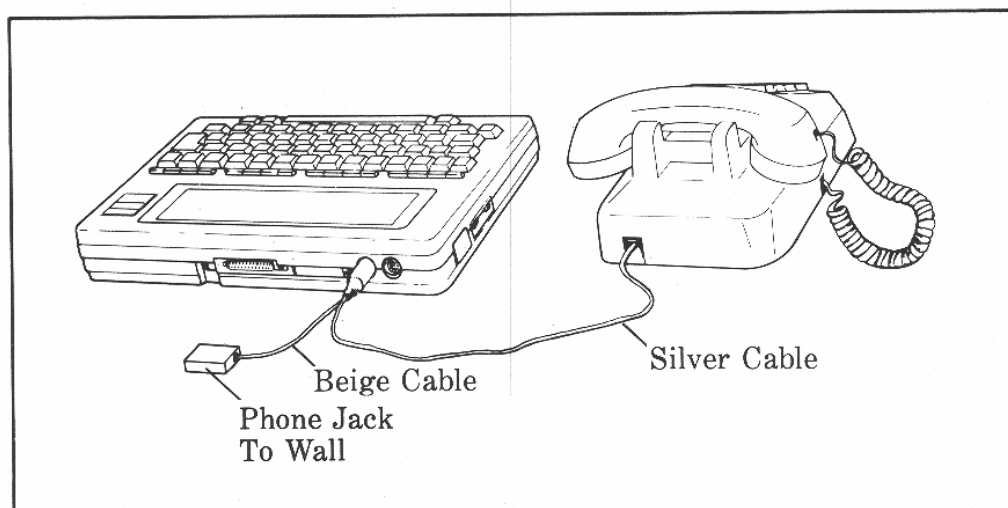


Figure 2-1. Setting up the Model 100 Modem Cable

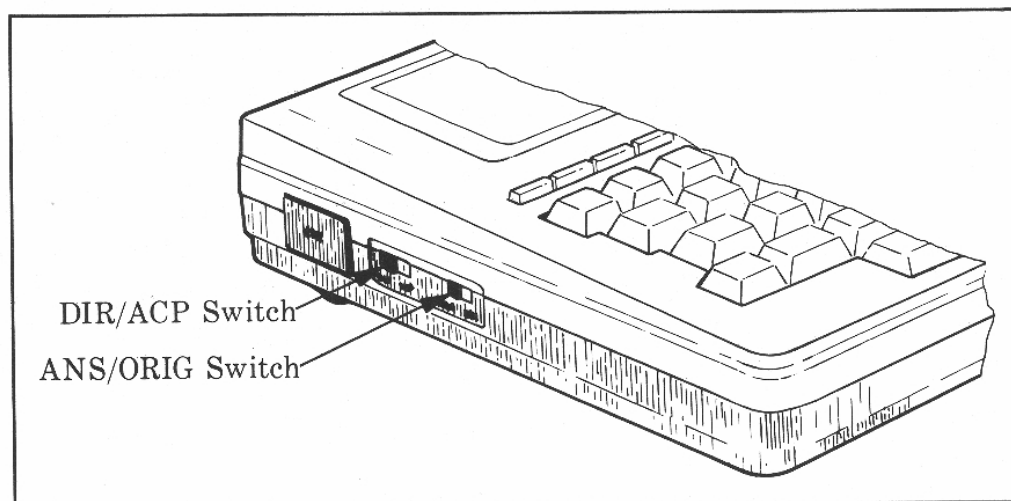


Figure 2-2. The Model 100's DIR/ACP and ANS/ORIG switches

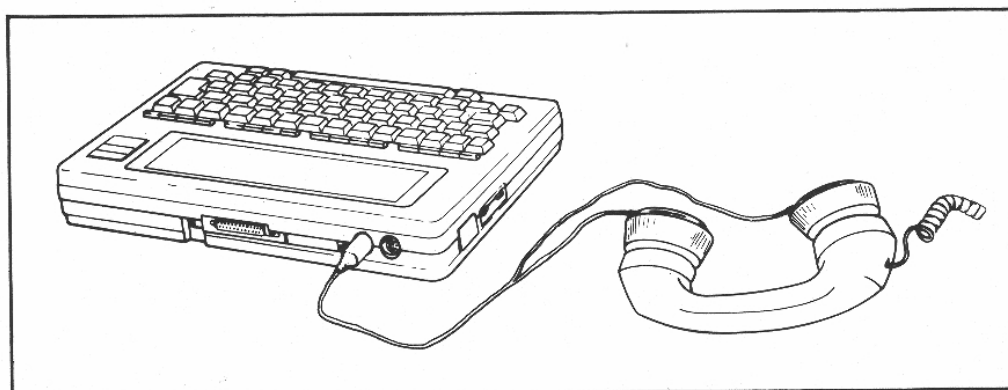


Figure 2-3. Fitting the Acoustic Cups to a phone receiver

Press F2 for CALL. When the CALL prompt appears, type in the local CompuServe number. (If you're in an unfamiliar city, see CompuServe's national phone directory for its local number.) For instance, type **5551234**. Next (without pressing ENTER), type less-than and greater-than signs after the number:

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass, and you'll hear a beep. When the cursor to the right of the number starts blinking, press ENTER. At this point, check to be sure that you are in full duplex. If the option on the screen above F4 is HALF, press that key and FULL will appear instead. (If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections as well as the software status—that is, be sure that the screen displays M7I1E or 37I1E, depending on whether you're using a Modem Cable or Acoustic Cups—and then repeat the procedure.)

If the connection is completed at the other end, a special code will appear, followed by this message:

HOST NAME:

You should type

CIS

and press ENTER. The following message from CompuServe will appear:

USER ID:

Simply type in the ID number CompuServe assigned to you when you subscribed and press ENTER. For example:

USER ID: 70703,912 ENTER

After a brief pause, CompuServe will ask you for your secret password.

PASSWORD:

Type in your password—carefully since it won't be displayed on the screen—and press ENTER. If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of the entire process should look something like this:

```
Telcom: Call 5551234<>
Calling 5551234
      01MCI
HOST NAME: CIS
USER ID: 70703,912
PASSWORD:
```

ACCESSING OAG INFORMATION

Once you've logged on to CompuServe, you'll be presented with a screen similar to that in Figure 2-4. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To get to airline schedule and fare information, select option 2, BUSINESS AND FINANCIAL, by typing 2 ENTER. You'll then be presented with another menu that looks like that in Figure 2-5.

Select option 7, TRAVEL SERVICES, by typing 7 ENTER, and a travel menu like the one shown in Figure 2-6 will appear. Select option 1, OFFICIAL AIRLINE GUIDE. The OAG menu will then appear. See Figure 2-7. Option 3 of the OAG menu gives details regarding flights. (The \$ sign indicates that using that option incurs costs that are added to your regular CompuServe fee.)

Once you've selected option 3, OAG will begin with introductory information, followed by a prompt. To answer the prompt you need to know only four commands:

- /S to investigate schedule information
- /F to investigate fare information
- /I to get help information
- /Q to quit and return to CompuServe.

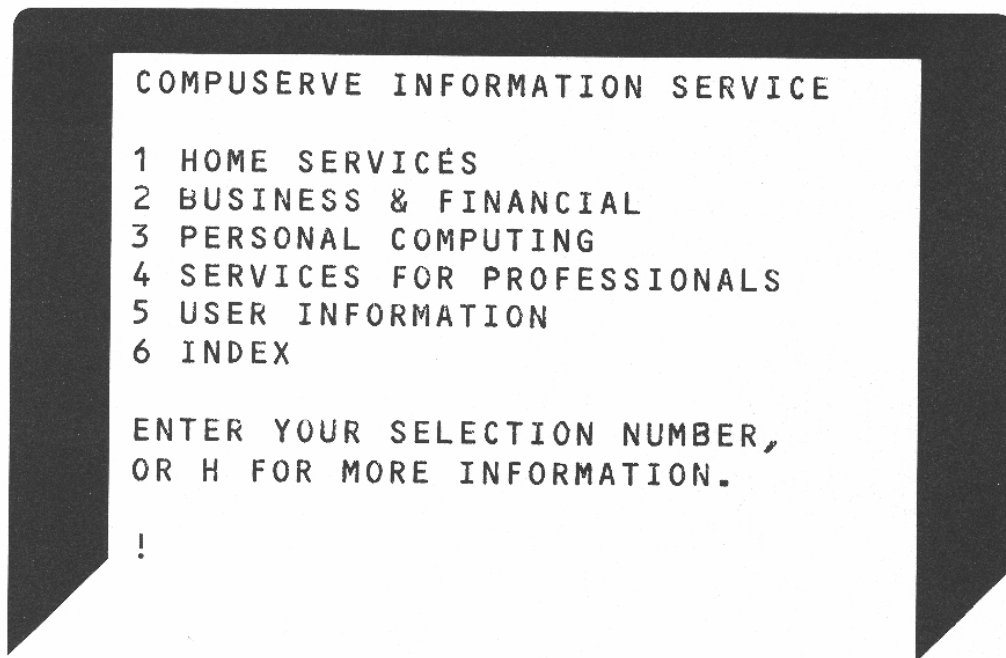


Figure 2-4. The CompuServe Information Service menu

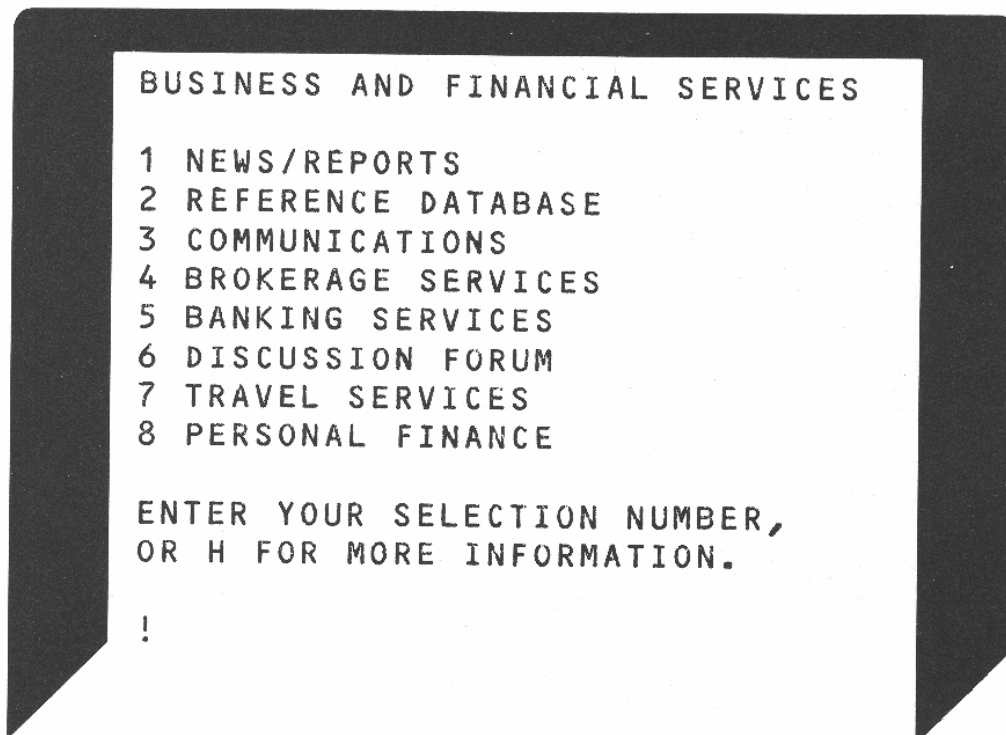


Figure 2-5. The CompuServe Business and Financial Services menu

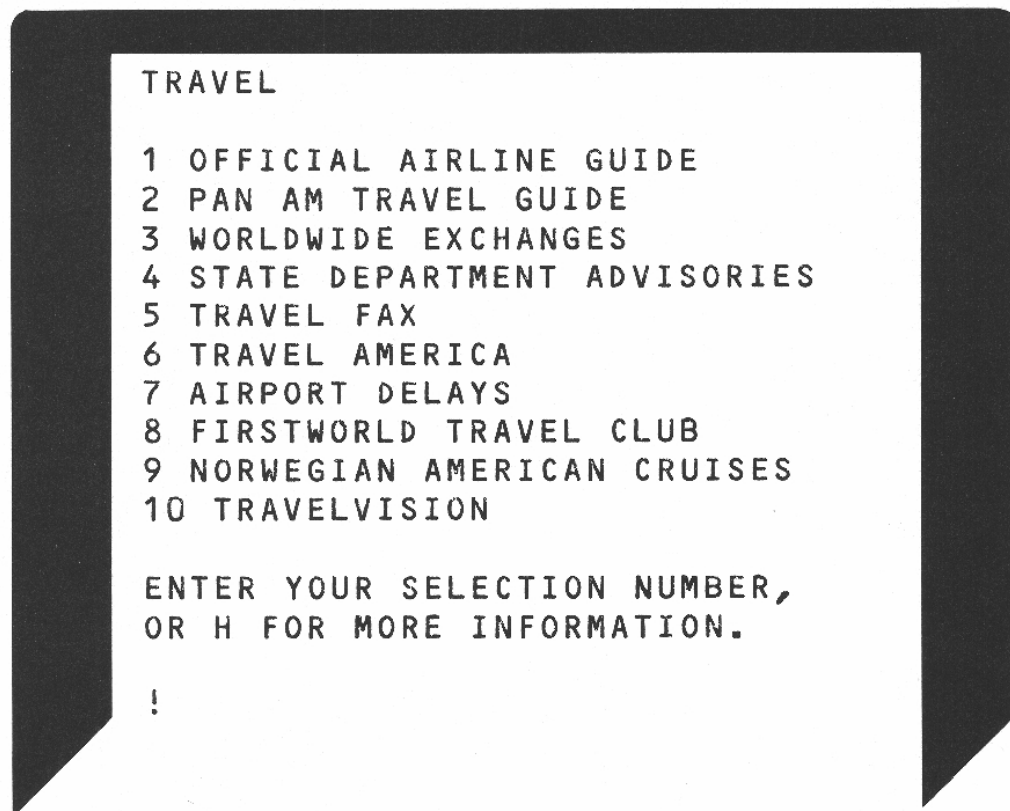


Figure 2-6. The CompuServe Travel menu

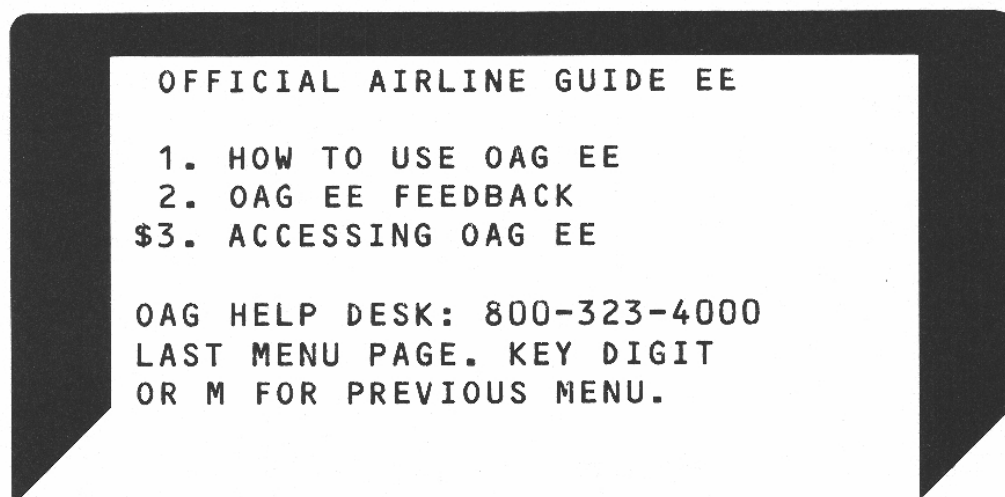


Figure 2-7. The CompuServe OAG menu

If you type either /S or /F, for scheduling or fare information, you will be asked four questions:

1. What is your departure city?

2. What is your destination city?
3. What is your departure date?
4. What time do you want to leave?

You can answer by typing in the names, dates, and times as follows:

- City names can be typed in full or can be abbreviated by the official three-character airport code (the one used on your airline baggage claim check to identify your destination, for instance, DFW for Dallas—Fort Worth Airport).
- Dates must entered with the day of the month first, followed by a three-letter abbreviation for the month, for instance, 26 Jan for January 26th.
- Times can be in military or regular format (that is, 3:00 P.M. can be either 1500 or 3 P.M.).
- For both time and date, you can type in + ENTER and OAG will assume that you want to use the current date and 6 A.M.

Getting Schedule Information

You need use only one command to get airline schedule information, the /S command. Simply type

/S ENTER

OAG will respond

ENTER DEPARTURE CITY NAME OR CODE

Type in the name of a city or its airport code. Dave Lammert, for example, might have typed in either **CHICAGO** or **ORD**. OAG will respond

ENTER DESTINATION CITY NAME OR CODE

Again, type in the name of a city or its airport code. Dave might have typed in either **DENVER** or **DEN**. OAG will then prompt you for the departure date:

ENTER DEPARTURE DATE
OR ENTER + TO USE 26 JAN

Type in a date, putting the day of the month first, or + ENTER for the current date. Finally, OAG will ask

ENTER DEPARTURE TIME
OR ENTER + TO USE 600AM

If you type in + ENTER, all flights from Chicago to Denver on the entered or current date will be displayed. See Figure 2-8.

Getting Fare Information

To find out the fare of a particular flight, type in the /F command followed by the line number of the flight you're interested in. Say, for example, of the flights displayed in Figure 2-8, Dave was interested in the 9:00 A.M. flight, line 3. To find out how much it cost, he typed **F3** and pressed ENTER. OAG responded with information similar to that shown in Figure 2-9.

Dave was most interested in the \$195.00 fare, but the asterisk told him there were limitations. To find out what they were, he typed **L3** and pressed ENTER. OAG gave him the information about fare restrictions shown in Figure 2-10. Dave didn't have three days to wait after picking up his ticket. Needing to get to Denver right away, he had to choose one of the other fares.

When you have gotten all the information you need, you exit the OAG service and return to CompuServe by typing **/Q** ENTER. Next, to exit CompuServe, you type **BYE** and press ENTER. Your last step for disconnecting from the phone line is to press F8 again.

DIRECT FLIGHTS				WED-26 JAN						
FROM-CHICAGO,IL,USA										
# TO-DENVER,CO,USA										
NO EARLIER DIRECT FLIGHT SERVICE										
1	570A	ORD	990A	DEN	UA	225	72S	B	0	
2	851A	ORD	100A	DEN	OZ	783	D9S	S	1	
3	900A	ORD	100P	DEN	AA	279	D95	L	3	
4	1005A	ORD	1118A	DEN	RC	789	D1G	B	0	
ENTER +,CX,X#,F#,RS				(#=LINE NUMBER)						
#										

Depart
Time

Airport
Name

Arrive
Time

Airport
Name

Airline

Flight
Number

Figure 2-8. Display of specified flight information

```

FARES IN US DOLLARS                                WED-26 JAN
SELECTED FOR ORD-AA 279 DEN

# ONE-WAY RND-TRIP ARLN/CLASS FARECODE
NO LOWER FARES IN CATEGORY
1*      238.00      AA/B      BE76
2*      249.00      AA/B      BE69
3*      195.00      AA/N      MAP2
4*      244.00  488.00  AA/Y      Y
5*      317.00  634.00  AA/F      F
      NO HIGHER FARES IN CATEGORY
      * ENTER L# TO VIEW LIMITATIONS
ENTER L#,X#,S,RS(#=LINE NUMBER)

```

Figure 2-9. Fare information for a specified flight

```

CHI-DEN AA    CLASS M      WED-26 JAN
      195.00 US DOLLARS ONE WAY
LIMITATIONS FOR FARE CODE MAP3

FARE DESCRIPTION: ADVANCE PURCHASE
      COACH FARES
BOOKING CODE: M.

PURCHASE TICKET FOR TRAVEL NO LATER
      THAN 3 DAYS BEFORE DEPARTURE.
      * END OF LIMITATIONS DISPLAY *
ENTER F TO RETURN TO FARE DISPLAY
ENTER S TO RETURN TO SCHEDULE DISPLAY

```

Figure 2-10. Limitations on a specified fare category

The TELCOM program then prompts you with the question
DISCONNECT?

You press Y (for yes) in response, and the TELCOM: prompt returns to the display. Press F8 to return to the Model 100 Main Menu. You can then use the phone to call the appropriate airline and make a reservation.

FINDING OUT MORE ABOUT OAG

If you're interested in subscribing to OAG or want more information about it, contact

Offical Airline Guides
Electronic Publishing
2000 Clearwater Drive
Oak Brook, Illinois 60521
Telephone: 800-323-3537, ext. 904
800-942-1888, ext. 904 (in Illinois)

OTHER TRAVEL INFORMATION SERVICES

If you want to find out about air traffic delays, you can choose option 7, AIRPORT DELAYS, from the CompuServe Travel Menu.

Moreover, OAG isn't the only travel service that you can use with your Model 100: CompuServe's FIRSTWORLD Travel Club (see Figure 2-6) lets you make advance reservations for airlines and hotels via electronic mail (which is described in the next chapter). You leave your message on CompuServe and a FIRSTWORLD representative reads the request, sends you reservation confirmation by postal mail, and bills you through the mail.

Another information service, The Source, uses the Travel Club not only for airline fare information and schedules but also for advance hotel reservations. Like CompuServe's FIRSTWORLD, the Travel Club is an electronic mail service; it is an independent agency that provides a service for The Source. After logging onto The Source, you communicate your travel plans to the Travel Club by electronic mail. A Travel Club representative reads the mail and makes the reservations for you. Then you mail them a check directly. You can also use the Travel Club to make hotel and rental car reservations and to get special travel tips and alerts for the areas in which you plan to travel.

The Source also allows you access to the Mobil Travel Guides, which offer information about more than 6000 restaurants in 1800 North American cities, and to the Mobil Travel Services, which offer information—such as rates and availability of facilities—about thousands of U.S. and Canadian hotels.

Keeping in Touch With the Office: Electronic Mail



It didn't bother Dave Lammert that his job required him to travel two or three days a week. What bothered him was the first couple of days back in his office. That's when he had to process the information he'd accumulated on his trip, handle all of his regular work, and catch up on his phone messages too.

What Dave found especially frustrating was that he was forced to waste so much otherwise productive time just sitting in airports and hotels. He knew he could get some of his work done if he just had a way of finding out what needed to be done. Ideally, of course, he could have simply called Wendy, his secretary, during normal working hours to get his phone messages, but either he was too busy during the day, or the time zone differences caused a problem, or a quick phone call wouldn't be enough to get the job done,

anyway. The only real time he had to spend on the telephone was in the evening—after Wendy had gone home for the day.

When Dave got his Model 100, he discovered that he could travel and still keep up with his office work—and at any hour of the day or night. Electronic mail (CompuServe calls its service EMAIL) let him do this. All he needed was his Model 100, a telephone, and a CompuServe account number.

The system Dave and Wendy worked out was quite simple. They each logged on to the information network using the same CompuServe account number—the user ID number assigned to their office. It was then an easy matter for Wendy to send Dave his “mail”: to leave a message, ask a question, or send a file Dave had requested. From his end of the line, Dave could read his messages or leave a message for Wendy. Since he usually did so late in the evening, Wendy would log on and check her electronic mail the first thing in the morning.

Occasionally Dave needed some large files that were stored in his office computer. The Model 100's TELCOM “upload” and “download” features made sending them so easy that Wendy usually didn't have to do any typing at all. And Dave didn't have to worry that someone else could read his mail. Only those people who knew Dave's and Wendy's user ID number could open his “mailbox.”

The rest of this chapter will describe how Dave and his secretary did this.

CONNECTING THE HARDWARE

To use CompuServe's electronic mail service, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a direct (modular jack) telephone.
- A Model 100 Acoustic Cup set and a telephone (such as a pay phone).

If you're connecting the Model 100 directly to a telephone (such as in an office or hotel room), use the Model 100 Modem Cable and set up the system as shown in Figure 3-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG.

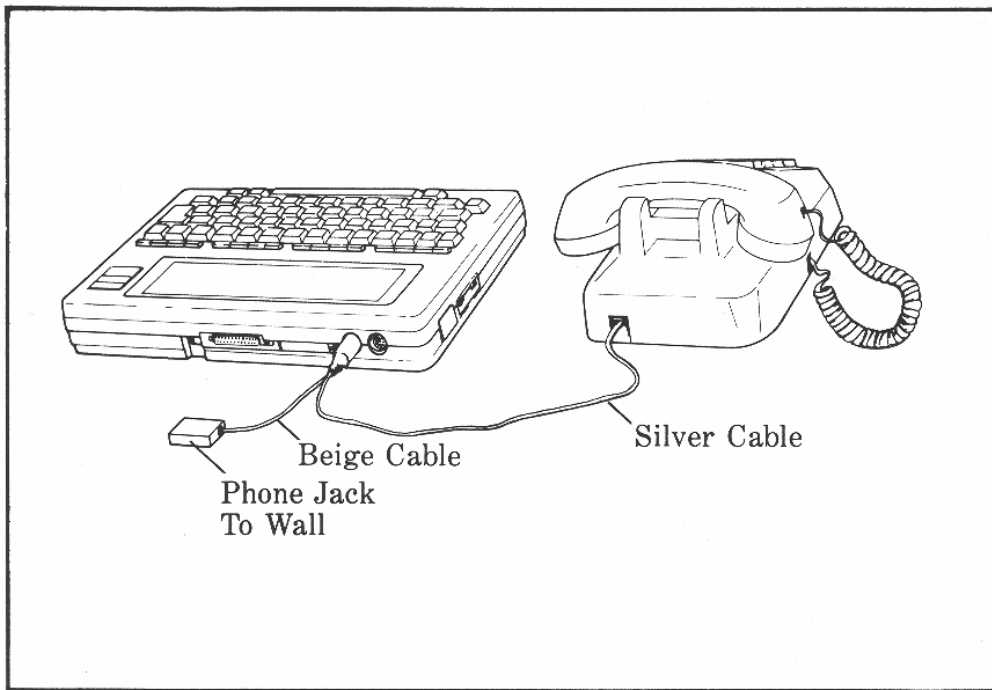


Figure 3-1. Setting up the Model 100 Modem Cable

Both switches are on the left side of the computer, as Figure 3-2 shows.

If you're connecting the Model 100 to a pay phone, use the

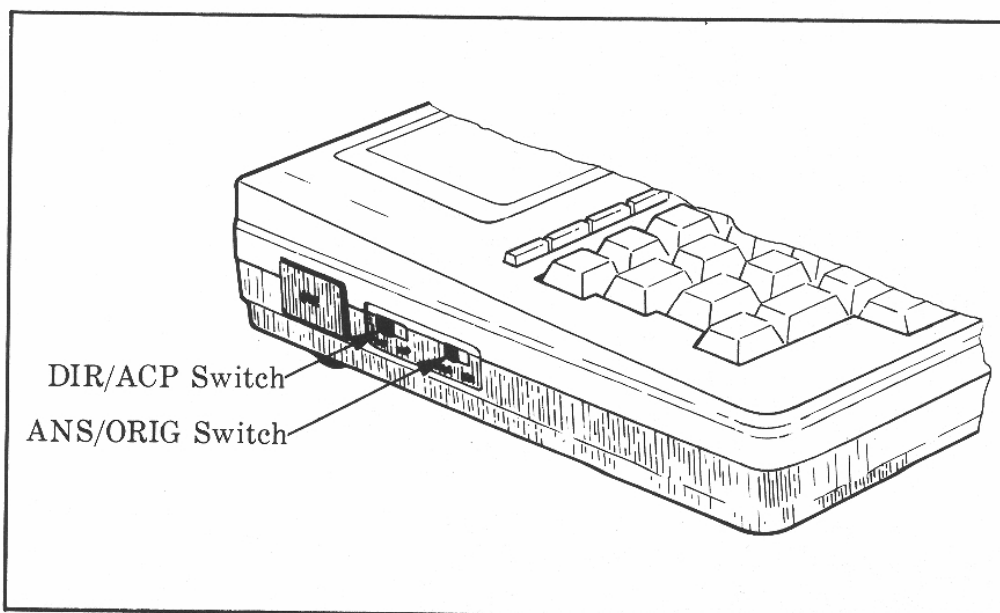


Figure 3-2. The Model 100's DIR/ACP and ANS/ORIG switches

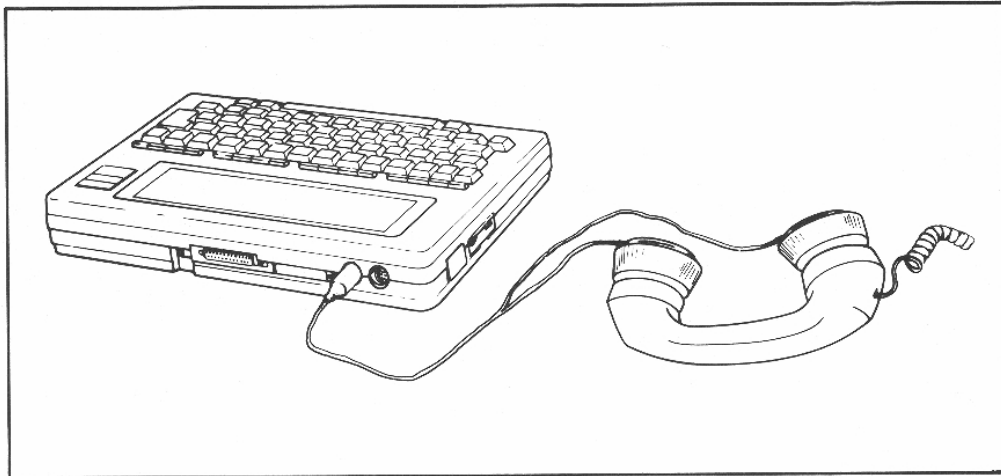


Figure 3-3. Fitting the Acoustic Cups to a phone receiver

Model 100 Acoustic Cups and set up the system as shown in Figure 3-3. Be sure to set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

SETTING UP THE SOFTWARE

The next step is to set up the Model 100's communications software so that it is the same as CompuServe's (that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length). To set the Model 100 so that it matches CompuServe, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP. From the Main Menu, move the cursor to TELCOM and press ENTER. Then press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

LOGGING ON TO COMPUSERVE

The Model 100 and CompuServe should now be ready to "talk" to each other, and the TELCOM: prompt should be displayed; press F2 for CALL. When the CALL prompt appears, type in the local CompuServe number. (If you're in an unfamiliar city, consult the national CompuServe phone directory for its local number.) For instance, type

5551234

Next (without pressing ENTER), type less-than and greater-than signs after the number:

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep. When the cursor to the right of the last number dialed starts blinking, press ENTER. At this point, check to be sure that you are in full duplex. If the option on the screen above F4 is HALF, press F4 and FULL will appear instead. (If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections as well as the software status STAT, and then repeat the procedure.)

If the connection is completed, a special code will appear, followed by this message:

HOST NAME:

You should type

CIS and press ENTER

The following message from CompuServe will appear:

USER ID:

Type in the ID number CompuServe assigned to you when you subscribed and press ENTER. For example:

USER ID: 70703,912 ENTER

After a brief pause, CompuServe will ask for your secret password

PASSWORD:

Type in the correct password—carefully, since it won't be displayed on the screen—and press ENTER. If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of the entire process should look something like this:

```
Telcom: Call 5551234<>
Calling 5551234
      01MCI
HOST NAME: CIS
USER ID: 70703,912
PASSWORD:
```

ACCESSING ELECTRONIC MAIL

Once you've logged on to CompuServe, you'll be presented with CompuServe's main menu, similar to the one shown in Figure 3-4.

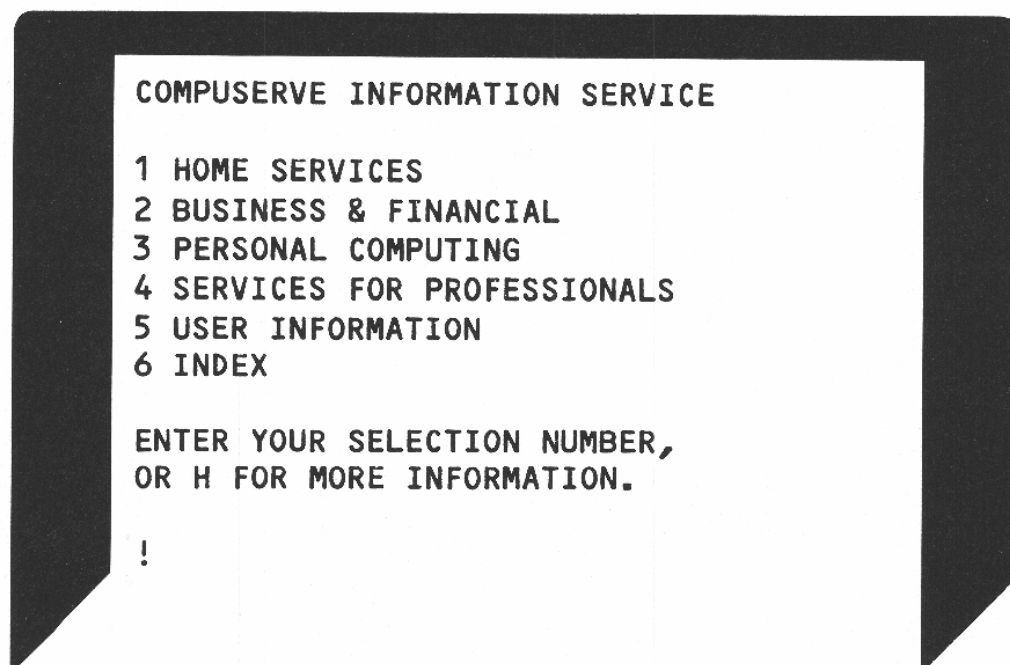


Figure 3-4. The CompuServe Information Service menu

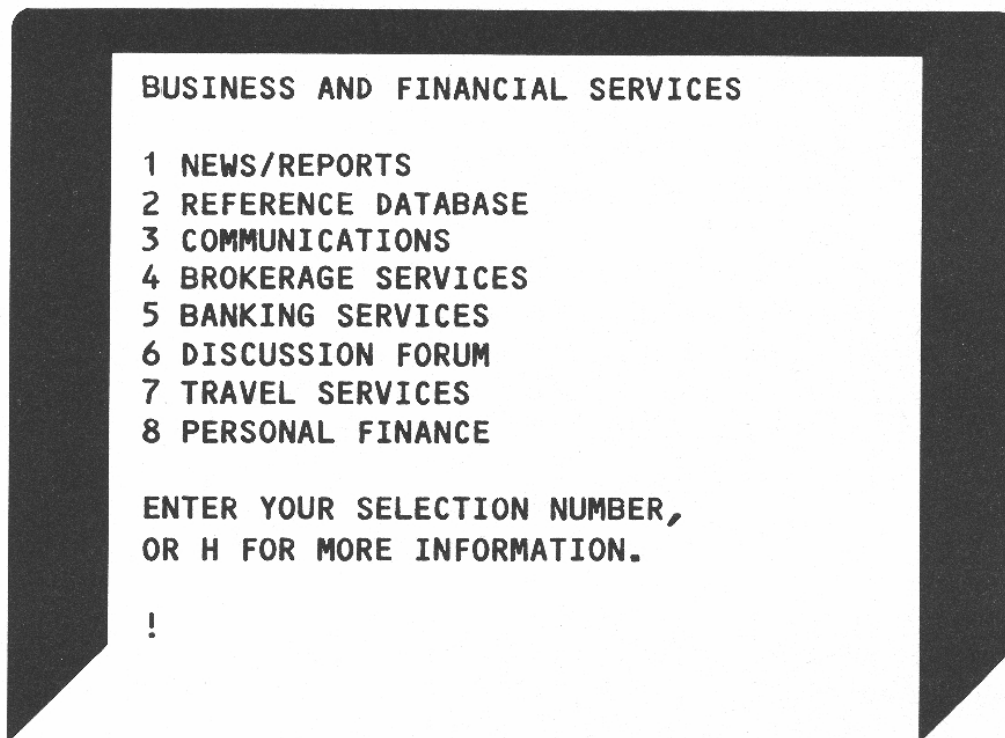


Figure 3-5. The CompuServe Business and Financial Services menu

The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To write, send, or read an electronic memo, select option 2, BUSINESS & FINANCIAL, by typing 2 and pressing ENTER. Another menu, like that in Figure 3-5, will appear.

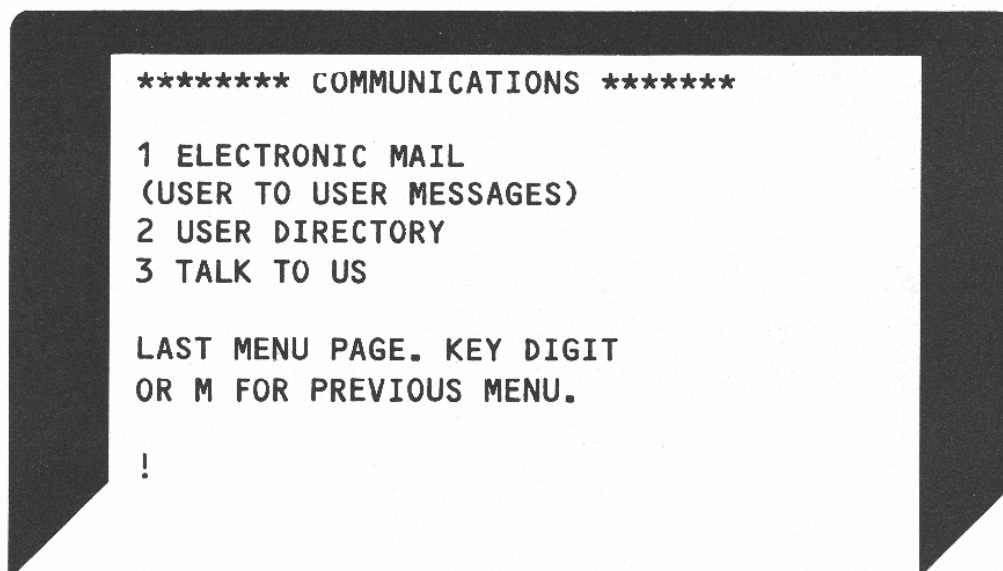


Figure 3-6. The CompuServe Communications menu

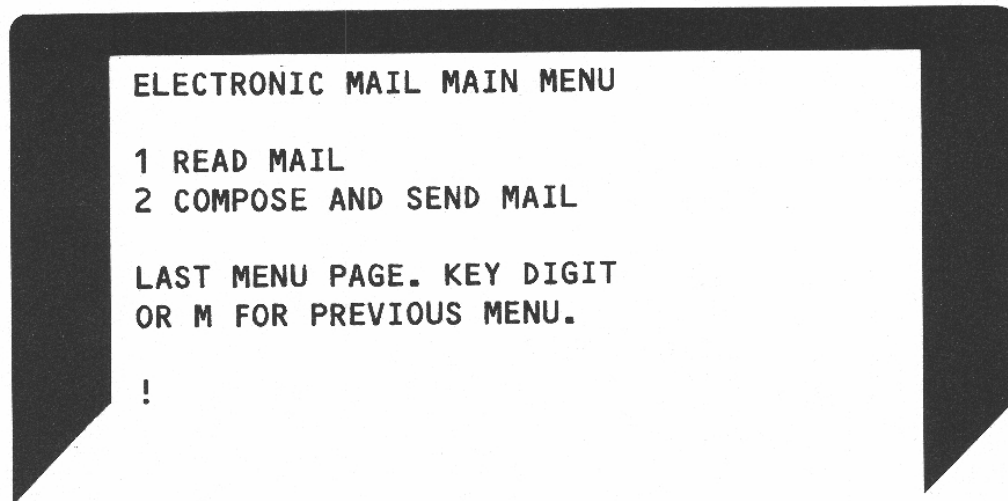


Figure 3-7. The CompuServe Electronic Mail main menu

To use electronic mail, select option 3, COMMUNICATIONS, by typing 3 and pressing ENTER. CompuServe will then send another menu screen, similar to the one shown in Figure 3-6. Select option 1, ELECTRONIC MAIL, by typing 1 and pressing ENTER. A brief description of EMAIL will then be displayed, followed by another menu; see Figure 3-7. You are ready to use the electronic mail system.

Writing and Sending EMAIL Memos

If you're sending messages (such as Dave or his secretary might), select option 2, COMPOSE AND SEND MAIL. Several options, such as those shown in Figure 3-8, will then be presented.

To compose short memos, type 1 and press ENTER. (FILGE is simply an abbreviation of "File Generator.") The Model 100 display will clear and the CompuServe file number for your memo will appear at the top of the screen. *This number is for CompuServe's reference only; it need not concern you.* You can then type any message you want. Wendy might leave a message like this:

```

DAVE — 4/12/83 — 16:30
CALL DIVISIONAL VP BRUCE JAGER IN NEW YORK
OFFICE
212-555-3341 AT 10:00 EST ON 4/13/83. RE: COPTER
TRANSFER FROM SALT LAKE CITY TO DALLAS.
```

ALSO, WHERE DID YOU LEAVE MOLSON FILE? I CAN'T
FIND IT.
WENDY

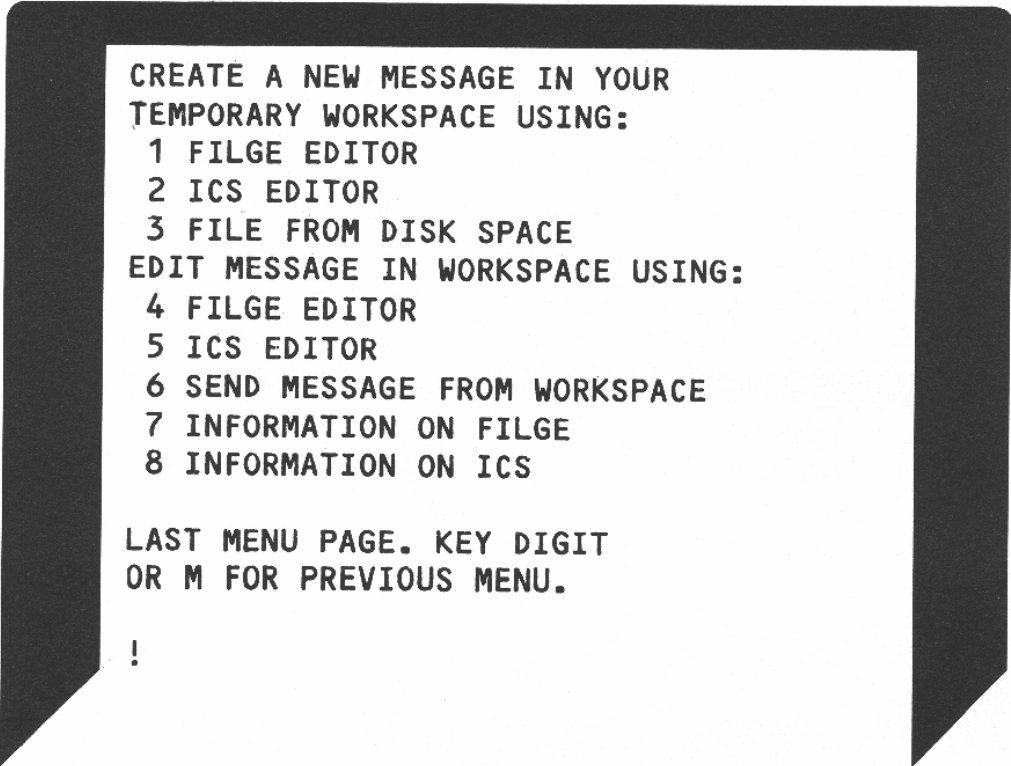
Once you're satisfied that the message is complete, type

/EX and press ENTER

to exit to the COMPOSE AND SEND menu. Then, if you're sure the message is correct, type 6 and press ENTER to send it.

Before it's sent, however, you'll be asked the user ID of the person you're sending the message to. See Figure 3-9. Because Dave and Wendy have the same user ID, and because CompuServe recognizes ID numbers, not persons, Dave, in effect, sends messages to himself. Next you'll be asked the subject matter. In the previous example, it might be DL:CALL for "Dave Lammert: Phone Calls." Finally, you'll be asked to give your name. You can type in your name or initials. (Refer again to Figure 3-9.)

CompuServe will give you one final chance to be sure the



```
CREATE A NEW MESSAGE IN YOUR  
TEMPORARY WORKSPACE USING:  
 1 FILGE EDITOR  
 2 ICS EDITOR  
 3 FILE FROM DISK SPACE  
EDIT MESSAGE IN WORKSPACE USING:  
 4 FILGE EDITOR  
 5 ICS EDITOR  
 6 SEND MESSAGE FROM WORKSPACE  
 7 INFORMATION ON FILGE  
 8 INFORMATION ON ICS  
  
LAST MENU PAGE. KEY DIGIT  
OR M FOR PREVIOUS MENU.
```

!

Figure 3-8. A CompuServe Electronic Mail options menu

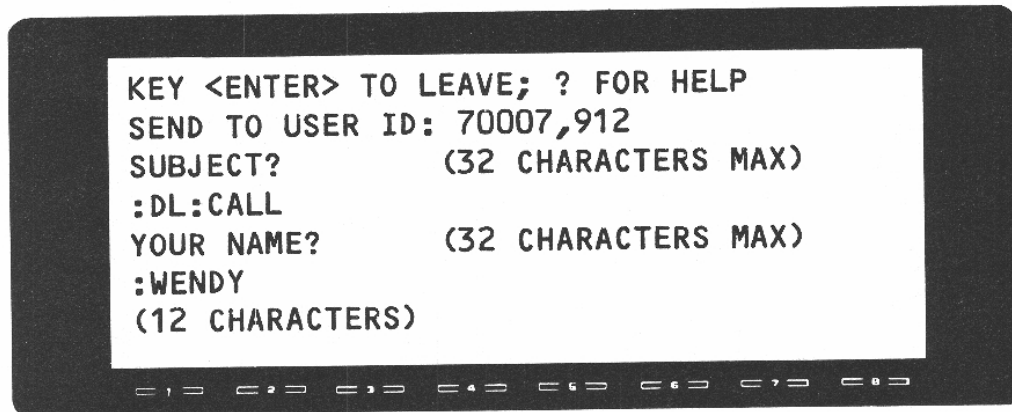


Figure 3-9. Input needed before a message is sent

information is correct. If you answer YES or Y, the mail is sent.

It can take as long as 20 minutes to process the memo. Do not expect to go back and read it immediately; if you want to see it, wait a while first.

Reading EMAIL Memos

When Dave returns to his hotel room in the evening, he can connect his Model 100 to the telephone and dial the local CompuServe number.

If Wendy, or anyone else, has left a message for him, he will be immediately informed. Instead of displaying the main menu, CompuServe will display the message

YOU HAVE EMAIL WAITING.

CompuServe will then automatically take him to the Electronic Mail main menu. (Look again at Figure 3-7.)

As Figure 3-10 shows, by selecting option 1, READ MAIL,

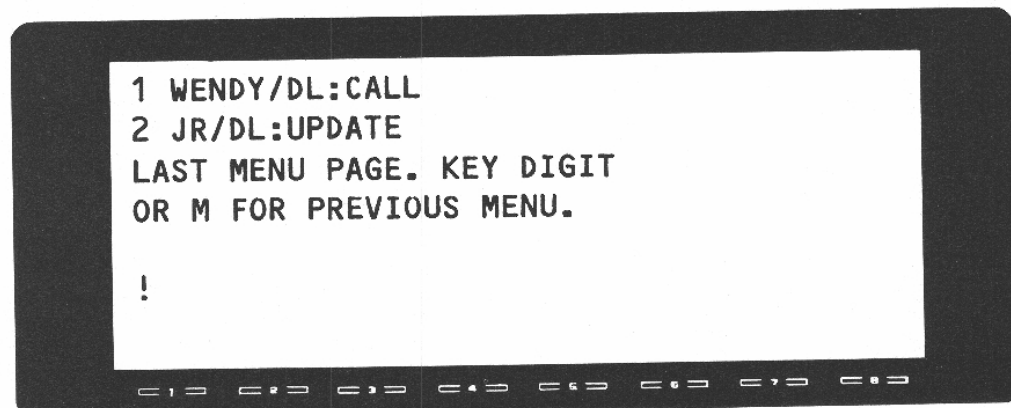


Figure 3-10. A list of messages identifying senders and subjects

Dave can get various kinds of information.

- A list of all the messages that have been sent to him
- The name of each person who sent a message
- The subject of each message.

Dave can select the memo he wants to read by typing the appropriate number and pressing ENTER.

The memo will then appear on his Model 100 display. At the top of the display will be the time and date the mail was sent so that it doesn't get mixed up with other memos. See Figure 3-11.

Storing or Throwing Away EMAIL

When Dave presses ENTER to continue, a menu similar to Figure 3-12 appears. After Dave has typed 1, 2, or 3, the operation he specified is performed.

- Option 1 deletes the message from the display but stores it in CompuServe's computer for about a month in case it needs to be seen again.
- Option 2 deletes the message forever.
- Option 3 displays the message again.

If Dave needs to leave a message for Wendy—for instance, to tell her where the Molson file is—he returns to the electronic mail

```
12-APRIL-83 16:30 Fr [70007,912]
DAVE -- 4/12/83 -- 16:30

CALL DIVISIONAL VP BRUCE JAGER IN NEW YORK OFFICE
212-555-3341 AT 10:00 EST ON 4/13/83. RE: COPTER
TRANSFER FROM SALT LAKE CITY TO DALLAS.

ALSO, WHERE DID YOU LEAVE MOLSON FILE? I CAN'T FIND IT.

WENDY

KEY <ENTER> TO CONTINUE

!
```

Figure 3-11. An Electronic Mail message

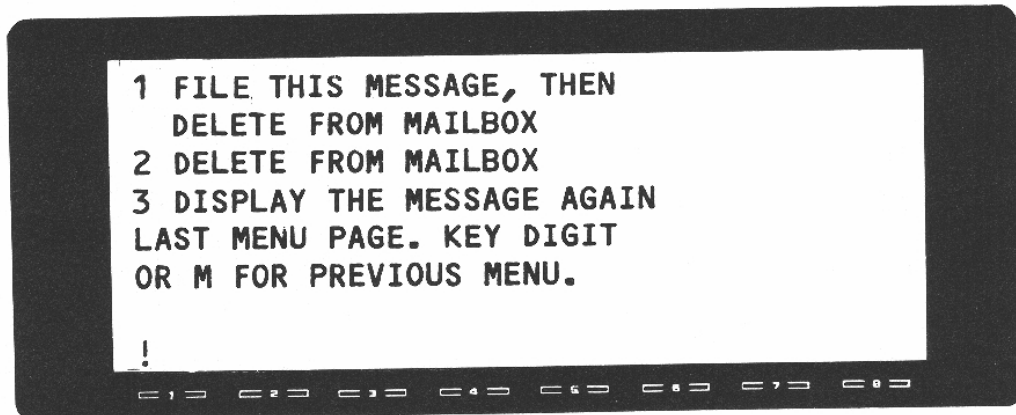


Figure 3-12. A CompuServe Electronic Mail options menu

main menu by typing **M** ENTER. He then goes through the procedure for composing and sending mail.

SAVING TIME ON COMPUSERVE

It's possible to send previously typed memos or files to another person via CompuServe without retyping the document. This capability offers the distinct advantage that you cut down on your CompuServe connect time, and thereby save money. To perform such an operation, use the Model 100's TELCOM "upload" feature.

You can also take documents from EMAIL and store them in a Model 100 RAM file (they will be listed on the Model 100 Main Menu as .DO documents). To do this, use the TELCOM "download" feature. Both procedures, upload and download, are simple ways of moving information from one point to another quickly and safely. We will now briefly describe them.

Uploading Previously Typed Memos Into EMAIL

If you have a long memo that was previously typed in as a TEXT .DO file, open a memo as described in "Writing and Sending EMAIL Memos," earlier in the chapter. When EMAIL indicates it is ready for you to type in a message, press F3 instead to upload a file from the Model 100's memory. The Model 100 will display the message

FILE TO UPLOAD?

Type in the name of the file as it is displayed on the Model 100's Main Menu (don't forget the extension .DO). When prompted for

WIDTH?

press ENTER. After you answer the user ID and subject matter prompts, the file will be sent from the Model 100's memory to EMAIL.

You should be forewarned, however, that the maximum length of any one piece of electronic mail is 4000 characters. If you try to send a longer document, EMAIL will instruct you to shorten the memo. The maximum number of memos that can be sent to one user ID at a time is 20.

Downloading EMAIL Messages

If Dave requested that Wendy send him a long file from the office computer, she would first send it to EMAIL just as we've described in this chapter. Dave would then load TELCOM, access CompuServe, and proceed to the EMAIL main menu (remember that if there were mail waiting for him, CompuServe would display that menu automatically). Look again at Figure 3-7. There he should select option 1, READ MAIL. A list of messages, such as those in Figure 3-10, will appear.

In this case, he should type 1 and press ENTER, and then immediately press F2.

FILE TO DOWNLOAD?

will appear. Dave should type in the name he wants to assign to the file—for instance, **WENDY**, and press ENTER. The label DOWN will be displayed in video (light letters on a dark ground) and the TELCOM message will then be displayed on the screen. When the message stops scrolling, Dave should press F2 again; the label DOWN will return to normal video.

He could then type **BYE** and press ENTER to go off-line from CompuServe, press F8 to disconnect from the phone line, and press F8 again to return to the main menu. There **WENDY.DO** will be listed.

The Source, another information service, offers a version of electronic mail called SourceMail. This service lets you create

notes, letters, documents, and other text materials. The Source also lets you send one document to as many as 200 different addresses simultaneously. See Appendix A of this book for more information on both CompuServe and The Source.

The Model 100 as a Foreign-Language Dictionary



Dave Lammert loves to travel in Canada. He's skied in Banff, fished in Lake-of-the-Woods, eaten lobster in Charlottetown, and seen just about everything in between. Consequently, when his divisional vice-president told him that their company had signed a contract to provide medical emergency helicopter services to small towns north of Montreal and that Dave would be operational manager of the project, Dave couldn't have been happier.

The contract stated that the helicopters would be based at hospitals in Montreal. When a medical emergency was called in from a remote village within a 500-mile radius, the patient would be transported to a major hospital in Montreal by helicopter.

Vacationing in the province of Quebec had introduced Dave to one of the biggest travel barriers in that part of Canada—the language difference. French is the official language of Quebec, and

it's sometimes hard to get around if you don't speak the language fluently. It didn't matter so much if he missed a word or two when he was on vacation, but Dave knew it wasn't that way in business.

David had studied French years ago in college, but his vocabulary wasn't extensive. He didn't know business or medical terminology in French. The average French-English paperback dictionary wasn't likely to be much help for such specialized communication. Dave wanted a reliable, portable reference that would meet his specific needs.

The Model 100 solved Dave's problem. Dave simply wrote a computer-based foreign-language dictionary: he created a Model 100 TEXT file which stored the foreign words that he used the most, or that were the hardest for him to remember, or that were technical. Because French nouns have gender, he also noted whether a word was masculine or feminine. When he needed to know the French equivalent of an English word or vice versa, he used the TEXT program's "Find" feature, and the troublesome word would appear on the screen next to its equivalent.

CONNECTING THE HARDWARE

No special hardware connections are required to create a foreign-language dictionary, nor are there any specific memory requirements for your Model 100. Just keep in mind that the larger the dictionary, the less RAM you have for other purposes.

You do have the option of connecting a printer to the Model 100 for printed copies of the dictionary or connecting a cassette tape recorder to the computer for permanent copies of the dictionary. We'll describe the hardware connections for printers and cassettes in this chapter, along with the steps you must follow to use the optional devices with the Model 100.

SETTING UP THE SOFTWARE

To begin typing in your dictionary, load the TEXT program by moving the Model 100 Main Menu cursor (by pressing the space bar) to the word TEXT and pressing ENTER. You'll then be asked

File to edit?

Type in a unique file name (six characters or fewer) and press ENTER. (In this chapter we'll use FR/DIC for "French Dictionary.") You can then begin preparing the translation dictionary.

PREPARING THE TRANSLATION DICTIONARY

Dave started the dictionary by identifying the words that he would most often need to translate from French and into French. To do so, he scanned through the English-French section of his bilingual dictionary.

He decided on a simple two-column format with English words in the left column and French words in the right. (It doesn't matter which column lists English words and which lists the foreign words as long as the format is kept consistent.) He separated the two columns by pressing TAB, which established a "tab," a uniform column position for the beginning of the second column. This step also made alphabetizing French words ("sorting") a simple matter, as we shall see. In fact, because the TEXT program's "Find" feature took him immediately to an entry whether it was in alphabetical order or not, neither column had to be alphabetized, as in a regular dictionary. Thus, he might type in

```
absorbent TAB absorbant ENTER
add TAB      additionner ENTER
```

Once it was typed in, the list might look like this:

absorbent	absorbant
to add	additionner
address	adresse (f.)
helicopter	helicoptere (m.)
flying	volant
shipment	chargement (m.)
emergency	circonstance critique
to spill	repandre
road map	carte routiere (f.)
proficient	verse
license	permis (m.)
tax	impot (m.)
contract	contrat (m.)
control	autorite (f.)
conveniently	commodement

credit	credit (m.)
maintain	maintenir
manage	diriger
rotary	rotatif
to quicken	animer
flight	vol
fog	brouillard (m.)
exhaust	echappement (m.)
childbirth	enfantement (m.)

Dave continually ran across words that he needed to add to the dictionary, but he could type them in at any time since the "Find" feature made alphabetizing unnecessary. However, when Dave needed a printed copy of the dictionary, he found it handy to use the Sort program in Appendix C of the Model 100 owner's manual. This allowed him to alphabetize the dictionary once by English words and print it out, then sort it again by French words and print it out. (The TAB key's predetermined spacing allowed him to specify the "starting position" in which the right-column "sort" would begin.)

USING THE TRANSLATION DICTIONARY

Once the translation dictionary was loaded into the Model 100 and Dave needed to find a word or two (either French-to-English or English-to-French), he simply moved the Main Menu cursor to FR/DIC.DO and pressed ENTER. The first line of the dictionary then appeared.

Next he pressed the F1 key, which brought up the prompt

String:

He could then type in the word he wanted, or just its first several letters, and the cursor would move to that point in the file. Say, for instance, he needed to know the French equivalent for "rotary." Here's what he did:

1. He moved the Main Menu cursor to the file name FR/DIC.DO and pressed ENTER.

2. When the top of the file appeared, he pressed F1, at which the prompt **STRING:** appeared at the bottom of the display.
3. He typed **rota** and pressed **ENTER**. The cursor instantly moved to the line in the list that read

rotary rotatif

Although Dave didn't need to type the entire word, if there had been a word (in English or French) before "rotary" that had the letters "rota," the cursor would have moved to that word first. Or if Dave had come across the French word "rotatif" and wanted to know what it meant, he could have repeated the procedure but typed **rotatif** and pressed **ENTER** when prompted by **STRING:**, and the cursor would have moved to the French word.

It is important to note that the "Find" function only searches down a file from the current cursor position; you must press **CTRL ↑** to return to the top of the file. For instance, say Dave's dictionary was alphabetized according to the French words, and he had previously found "rotatif" and wanted to search for "carte routiere." He would need to press **CTRL ↑**, then press F1, and then type in **carte rout** and press **ENTER** before the cursor would move to that entry.

MAKING AND USING PERMANENT COPIES OF THE DICTIONARY

Unless you're a constant traveler (or a student taking a foreign-language class), you won't be using the dictionary every day. Consequently, you'll probably want to store it on cassette tape to free up the Model 100's memory for other data and programs. In fact, if you create dictionaries for several foreign languages, you may want to have a separate tape dedicated to each language.

Storing the Dictionary on Cassette

Before storing a **TEXT** file on cassette tape, be sure you have the cassette recorder properly connected to the Model 100; you'll need Radio Shack's Cassette Recorder Cable (see Figure 4-1). Also be sure that the volume control on the cassette recorder is set at mid range (for example, at 5). We also suggest that you use certified leaderless computer tapes and back up your dictionary on two

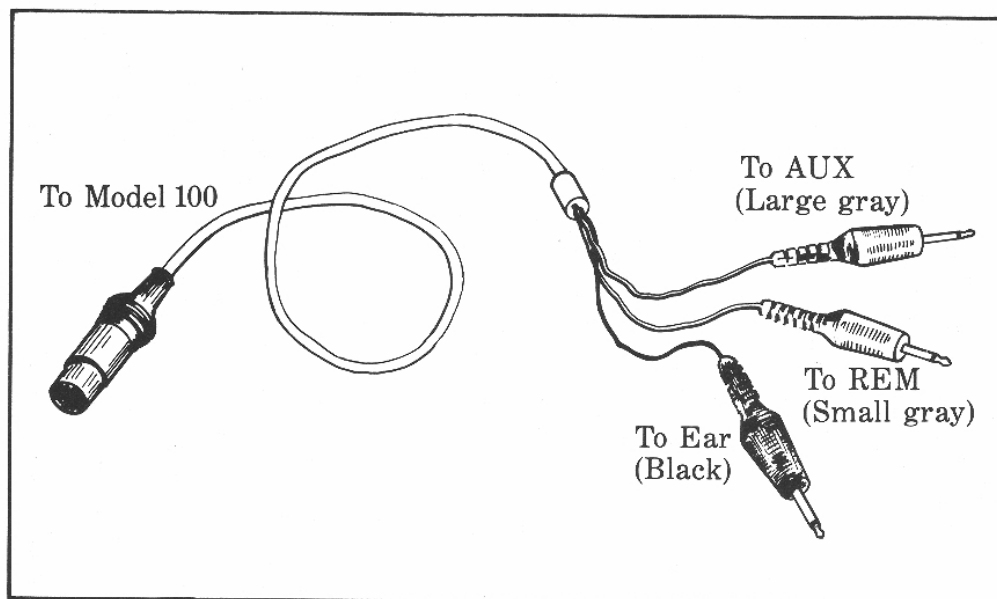


Figure 4-1. Radio Shack's Cassette Recorder Cable

(or more) tapes in case one tape gets “zapped.” (Cassette tapes are particularly susceptible to erasure by static electricity.)

You then follow these steps:

1. Rewind the cassette to the beginning and set the cassette recorder counter to 0.
2. Press the PLAY and RECORD buttons.
3. Load the dictionary file you wish to save on tape by moving the Main Menu cursor to the file name (in our example, to FR/DIC.DO) and pressing ENTER.
4. When the TEXT file is loaded, press F3 so that at the bottom of the display will appear the prompt

Save to:

5. Type

FR/DIC

6. The bottom line of the display will now say

Save to: FR/DIC

Press ENTER.

The tape in the cassette recorder will begin turning, the record light will illuminate, and the Model 100's cursor will disappear. When the dictionary is stored, the tape will stop turning and the Model 100 cursor will reappear.

Loading the Dictionary From Cassette

If you've previously saved a translation dictionary onto cassette tape and want to load it back into the Model 100 (say, before going on a trip), connect the cassette recorder to the Model 100 as described. Be sure the cassette tape is rewound to the beginning or is advanced to the proper position as determined by the cassette counter, and then follow these steps:

1. Open a TEXT file by positioning the Main Menu cursor over the word TEXT and pressing ENTER.

2. When prompted

File to edit?

type

FR/DIC and press ENTER

The screen will clear and the TEXT file will then be created and opened.

3. Press F2 and the prompt

Load from:

will appear.

4. Type in the file name you used when you saved the dictionary,

FR/DIC and press ENTER

The display will look like this:

Load from: FR/DIC

When the cassette begins turning, the names of files stored on the tape will appear on the Model 100 screen, prefaced by the word FOUND. If the file name is not the one you specified, that file will be skipped (the recorder will continue to turn, but the file will not be loaded). When the file you specified is encountered, it will be loaded into the Model 100 and the recorder will stop turning.

Printing Out a Copy of the Dictionary

There may be times when you'll find a printed copy of your foreign-language dictionary handy. To print it out, first be sure the dictionary is loaded into a TEXT file. (It will be listed on the Main Menu and have a .DO extension.) Remember that you can get an alphabetized printout by using the Sort program found in Appendix C of the Model 100 owner's manual.

Before connecting a printer to the Model 100, be sure *both* the computer and the printer are turned off. Connect the large end of the Model 100 Parallel Printer Cable to the printer, and then connect the small, rectangular end of the cable to the computer. (Be sure the end connected to the Model 100 exits *down*.)

Turn on the power to the printer before turning on the Model 100.

From the Main Menu, move the cursor to FR/DIC.DO and press ENTER. When the dictionary is loaded, press the SHIFT and PRINT keys at the same time. The entire dictionary will then be printed out.

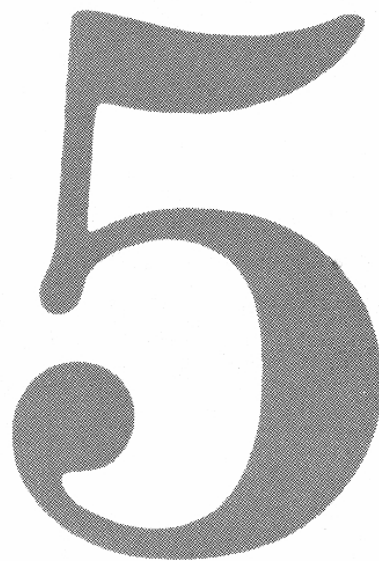
OTHER ACTIVITIES

Try creating different dictionaries for different languages (naming, say, a German dictionary GE/DIC.DO, a Spanish one SP/DIC.DO, and so on). If your programming skills are strong enough, you might want to write a BASIC program that prompts you for the English word you want to translate and then prompts for the language you want it translated to. The program would then go out and get the translation from the proper file.

Another idea might be a program that prompts you for an English word, then reads two or three different foreign-language files and displays their equivalents for the English word simultaneously.

If you want to learn a foreign language, The Source offers exercises and drills in six: French, German, Italian, Latin, Spanish, and Greek. Each exercise is conversational, and The Source will "grade" you so you'll know how you're doing.

Conversion Routines To Make Foreign Travel Easier



Even for seasoned travelers like Dave Lammert, getting around in a foreign country can be a problem. Other than the obvious language differences, Dave found that his biggest stumbling blocks were the differences in time, measurement, and money. In this chapter, we provide BASIC programs that convert unfamiliar standards to familiar ones. You'll see how your Model 100 can make traveling a little easier.

CURRENCY CONVERSION

When expense accounts and finances get mixed up with different currencies, even normally clear situations get muddled very quickly. Dave Lammert found this out every time he went to Canada, where he not only had to continually keep track of his per-

sonal finances, but also needed to compute business expenses on the spot.

If the Canadian dollar—or any other foreign currency, for that matter—remained on a stable level with the U.S. dollar, the problem wouldn't be nearly so acute. However, with a daily (or sometimes hourly) fluctuation, it's hard to keep up with changes. The routine we describe here, CURCNV (short for Currency Converter), makes currency conversion a simple but accurate process.

CONNECTING THE HARDWARE

This routine requires no special hardware connections. However, we suggest that once you type in the program, you connect a cassette recorder to your Model 100 and save the program on tape. You also have the option of connecting a printer to the Model 100. If you do so, or intend to do so, you'll have to change all PRINT statements in the program to LPRINT.

As long as your TEXT data file is not too large, and there is not too much other information stored in the computer, this program can easily be used with an 8K Model 100.

SETTING UP THE SOFTWARE

CURCNV is a BASIC program that interacts with a TEXT word processing file. Consequently, you'll need to type in both a BASIC program and a TEXT data file. The BASIC program will "read" whatever data you type into the TEXT file.

The BASIC Program CURCNV.BA

To type in the BASIC program, move the Model 100's Main Menu cursor to the word BASIC and press ENTER. The screen will display copyright information, the OK prompt, and a blinking cursor. Type in the program just as it is listed here. Be sure to enter the line numbers (the numbers 5, 10, 20, 30, and so on, at the beginning of each line) and to end each line by pressing ENTER.

```

5 ' *** Currency Converter -- Copyright 1983 Sayre &
  Erickson ***
10 ON ERROR GOTO 210
20 CLS: INPUT "What currency";DMS$
30 INPUT "From currency <T>o US dollars or <F>rom US

```

```

    dollar to currency (Press <T> or <F>);ANS$
40 IF AN$="T" OR AN$="t" THEN CD=1 ELSE IF AN$="F" OR
    AN$="f" THEN CD=0 ELSE 30
50 INPUT "How many";AM
60 OPEN "CURENC" FOR INPUT AS 1
70 IF EOF(1) THEN PRINT DM$; " not entered": GOTO 150
80 LINE INPUT#1,RC$
90 IF INSTR(1,RC$,DM$)=0 THEN 70
100 TP=INSTR(1,RC$,CHR$(9))
110 IF TP=0 THEN PRINT DM$; " record invalid": GOTO 150
120 IF CD=1 THEN AM=VAL(MID$(RC$,TP+1,LEN(RC$)-TP))*AM
    ELSE AM=AM/(VAL(MID$(RC$,TP+1,LEN(RC$)-TP)))
130 PRINT "This is";USING"#####.##";AM;
140 IF CD=1 THEN PRINT " U.S. Dollars" ELSE PRINT
    " "DM$
150 CLOSE 1
160 PRINT "Press <M> for more;<Q> to quit";
170 AS=INKEY$
180 IF AS= "M" OR AS="m" THEN 20
190 IF AS= "Q" OR AS="q" THEN MENU
200 GOTO 170
210 STOP: OPEN "CURENC" FOR OUTPUT AS 1
220 CLOSE 1
230 RESUME

```

Once you have typed in the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "CURCNV" ENTER

We also suggest that you save the program onto cassette tape at that time. Connect a cassette recorder to Model 100 (see your owner's manual for details on program control) and simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the CURCNV program is loaded into memory; then type

CSAVE "CURCNV" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as CURCNV.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line with the mistake. Simply retype the line (line number and all)

the way it is listed in this chapter, and then execute the program again.

How CURCNV Works CURCNV.BA provides a quick way of converting foreign currency to U.S. dollars and vice versa. To use CURCNV, you need to find out the currency exchange rates for the countries you'll be traveling in. Usually you can get this information from the financial section of a newspaper or from a bank or the currency exchange brokers at most international airports or train terminals.

The exchange rate information is stored in a TEXT .DO file called CURENC.DO. When you run the BASIC program called CURCNV.BA, the program reads the data you've previously stored in the TEXT .DO file and displays the answers on the screen. The variables used in CURCNV.BA are defined in Table 5-1.

The Text File CURENC.DO

When you have obtained the currency exchange information you need, create a data file called CURENC.DO using the TEXT word processing program.

To create this TEXT file, move the Model 100 Main Menu cursor to TEXT and press ENTER. When you're asked

File to edit?

Type

CURENC and press ENTER

Table 5-1. Variables Used in CURCNV.BA

Variable	Definition
A\$	Response to More/Quit prompt
AM	Amount of DM\$
AN\$	Response to To/From prompt
CD	Conversion direction (0 → from dollars; 1 → to dollars)
DM\$	Denomination of foreign currency
RC\$	Record input from CURENC.DO
TP	Pointer to tab character in RC\$

When the Model 100 display clears, you can begin entering the information about a foreign currency: its nationality, the unit, or "denomination," and its current rate of exchange with U.S. dollars. Type in the currency *exactly* as you will access it. The program cannot correlate "Canada" with "Canadian." For each currency, use this format when entering values into the TEXT file:

- Type in the name of the currency unit
- Press TAB
- Type in the value in U.S. dollars
- Press ENTER.

Say, for example, one Canadian dollar = 81 cents in U.S. money. To enter data for the Canadian dollar, type

Canadian dollar TAB .81 ENTER

Continue typing the data in the required format. For instance,

Canadian dollar TAB .81 ENTER

British pound TAB 1.65 ENTER

French franc TAB .145 ENTER

Mexican peso TAB .0065 ENTER

When you've completed your list, press F8 to return to the Model 100 Main Menu, and you'll see the file name CURENC.DO listed.

We also suggest that you save the TEXT data file CURENC.DO on cassette tape just as you saved the CURCNV.BA program. To save a TEXT file on tape, be sure the file to be saved is displayed on the screen, then press F3. Type in the name you want the file saved under. (In this example, press F3 and type **CURENC** and press ENTER.) Later, when you want to load it from tape, create a TEXT .DO file: move the Main Menu cursor to TEXT, press ENTER; type in **CURENC** and press ENTER. When the display clears, press F2 and, when prompted, type in **CURENC** and press ENTER again. The recorder should begin loading the data file.

USING THE CURRENCY CONVERSION PROGRAM

Now you're ready to use the CURCNV program. Position the Model 100 Main Menu cursor on the word CURCNV.BA and press

ENTER. The screen will clear, and the program will ask

What currency?

Type the name of a foreign currency *exactly* as you entered it in CURENC.DO. (For example, type **Canadian dollar**, not CANADIAN DOLLAR.) The program then asks

From currency <T>o US dollars or <F>rom
US dollars to currency (Press <T> or <F>)?

Type T if you want to find out how much the local currency is in U.S. dollars. For example, if you're shopping in a Mexican market and you find a shawl, you'll want to know how much its price of 1000 pesos is in U.S. dollars. You'll want to go *to* U.S. dollars from Mexican pesos. Press T.

On the other hand, type F if you want to find out how many units of a foreign currency are equal to a U.S. dollar or a certain number of U.S. dollars. For instance, if you're planning a trip to Mexico, you may want to set your budget at \$50 per day. What you want to know is how many pesos per day this is, so you'll want to go *from* U.S. dollars to Mexican pesos.

Keep in mind that the program always moves *to* U.S. dollars from foreign currency or *from* U.S. dollars to foreign currency.

After you've pressed T or F, the program asks

How many?

If you answered the second prompt with T, type the number of foreign currency notes that you want to convert to dollars. If you answered the second prompt with F, type in the number of U.S. dollars you want to convert to foreign notes.

If the foreign currency is entered in the CURENC.DO file, the program will respond with the converted amount in the desired units. If the currency isn't found, the program prints an error message. In either case, the program then displays the message

Press <M> for more; <Q> to quit

Press M to continue converting money or Q to return to the Model 100 Main Menu.

Let's sum up this section with an example: when Dave Lamert was in Montreal, he needed to buy a warm jacket. He found one priced at \$155.60 in Canadian dollars. He wanted to know how

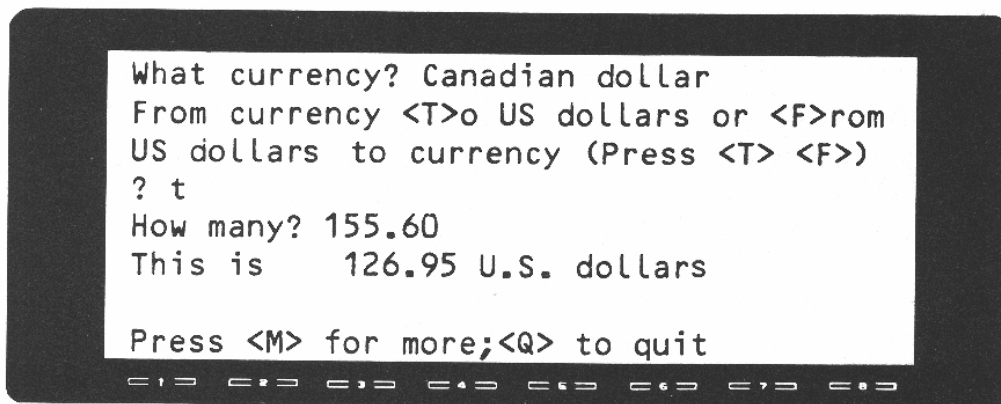


Figure 5-1. A currency conversion process

much this price was in U.S. dollars so he could tell if he was spending too much money. The entire conversion process might look something like that in Figure 5-1. Because exchange rates can fluctuate, you may have to change a currency value in the CURENC.DO file. Here's how: return to the Model 100 Main Menu and position the cursor over the file name CURENC.DO, and then press ENTER. Make the changes (be sure to keep the "currency unit TAB value ENTER" format) and press F8 to return to the Main Menu.

TIME ZONE CONVERSION

The region Dave Lammert is responsible for stretches over three time zones—from Quebec in the East to Idaho in the West. Furthermore, Dave often needs to coordinate activities with offices on both the East and West coasts as well as in Europe and the Orient. Making a call at the wrong time or missing a call altogether could cost his company thousands of dollars.

One day, for instance, Dave was visiting a branch office in New York when he had to call a business affiliate in Tokyo. He learned there is a nine-hour time difference between New York and Japan. To make the call, he went to work early the next day (at 7 A.M.) and called Tokyo, where he thought the time was 4 P.M. Only when he called did he find out that in Tokyo it is nine hours *earlier* than in New York—in Tokyo it was 10 P.M. That one call impressed upon Dave the need to know what time it is in zones other than the one he was currently in.

TIMZON (short for "Time Zone"), the BASIC program we show you in this part of the chapter, helps you find out the time around

the world so that what happened to Dave never happens to you. Simply create a TEXT .DO file and type in a time zone for each city for which you'll need the time. When you need to know the time in a particular city, run TIMZON and it will tell you the correct local time.

Since the Model 100 has no way of independently identifying the cities in any time zone, it must rely on the information you type into the computer. Dave limited his time zone conversions to the cities he typically had business in, plus a few additional major cities; he kept track of Denver, St. Louis, Salt Lake City, Los Angeles, Chicago, Cleveland, Dallas, Montreal, New York, San Francisco, London, and Toyko, to name just a few.

A FEW WORDS ABOUT TIME ZONES

Before describing how to use TIMZON, let's define a few terms. We start with "longitude": longitude is a measure of the distance along the equator from a designated point on the equator. The most common unit of longitudinal measurement is the degree; there are a total of 360 degrees along the entire circumference of the equator. Each degree is further divided into 60 minutes per degree, and each minute is divided into 60 seconds. However, for the purposes of this program, you need only concern yourself with degrees.

By convention, longitudinal measurement increases as you move westward from 0 degrees, which is at a point where a north/south line running through Greenwich, England, intersects the equator. The maximum measurement is 359 degrees, 60 minutes to the east of Greenwich.

Also by convention, "noon" is the time at which the sun is at its highest. So to keep time relevant to a particular location on the globe (that is, to keep noon at this point in London, Tokyo, and New York), the globe has been divided into 24 time zones. Within a given zone, the time remains constant. Adjacent time zones differ by one hour. The width of each time zone is 15 degrees (360 degrees divided by 24, the number of hours per day). The first time zone begins at 0 degrees (Greenwich), the second begins at 15 degrees, and so on. For every 15 degrees west of Greenwich, subtract one hour from "Greenwich Standard Time."

To find the time zone of a particular city, use a world map with longitudinal markings to find the city's longitude. Most maps list

longitude up to 180 degrees (a north/south line running through the Pacific Ocean), with references to "longitude east of Greenwich" or "longitude west of Greenwich."

For cities with longitude given "west of Greenwich," use the value on the map. For cities with longitude given "east of Greenwich," subtract that longitude from 360. Then divide either number (whether taken directly or obtained by subtraction) by 15, keeping the whole number portion of the result. This number is the city's time zone relative to Greenwich, the time zone of which is zero. For example, Fort Worth, Texas, lies approximately at 97 degrees longitude; 97 divided by 15 is 6.47, so Fort Worth is in time zone 6. This means that when it is midnight in Greenwich, it is only 6 P.M. in Fort Worth.

However, for one reason or another, there are certain deviations from the rules just given. First, in the summer, most states use "daylight savings time," which adds one hour to the "standard time" in a given time zone, in effect subtracting one time zone. Second, for convenience, certain time zones don't fall exactly on 15-degree boundaries. For example, a city that falls on a 15-degree boundary will not be split into two time zones, or a time zone boundary may fall on a county or state line.

For these reasons, we've included a few cities and their zone numbers in Table 5-2. For other cities, check an encyclopedia or atlas for the correct longitude or the time zone number.

Table 5-2. Time Zones of Some Major Cities

City	Time Zone Number
Chicago	6
Fort Worth	6
Honolulu	10
Juneau	9
Los Angeles	8
Melbourne	14
Montreal	5
New York	5
Paris	23
Tokyo	15
Toronto	5
Washington D.C.	5

CONNECTING THE HARDWARE

The TIMZON program requires no special hardware connections. However, we suggest that once you type in the program, you connect a cassette recorder to your Model 100 and save the program on tape. You also have the option of connecting a printer to the Model 100. However, if you do so, or intend to do so, you'll have to change all PRINT statements in the program to LPRINT.

As long as your TEXT data file is not too large and there is not too much other information stored in the computer, this program can easily be used with an 8K Model 100.

SETTING UP THE SOFTWARE

TIMZON is a BASIC program that interacts with a TEXT word processing file. Consequently, you'll need to create (type in) both a BASIC program and a TEXT data file. The BASIC program will "read" whatever data you type into the TEXT file.

The BASIC Program TIMZON.BA

To type in the BASIC program, move the Main Menu cursor to the word BASIC and press ENTER. Copyright information, the OK prompt, and below them a blinking cursor will be displayed.

Type in the program just as it is listed. Be sure to enter the line numbers (the numbers 5, 10, 20, 30, and so on, at the beginning of each line) and to end each line by pressing ENTER.

```

5 ' *** Time Zone Converter -- Copyright 1983 Sayre &
  Erickson ***
10 DEFINT A-Z
20 ON ERROR GOTO 420
30 KEY1,CHR$(1): KEY2,"": KEY3,"": KEY4,"": KEY5,"":
  KEY6,"": KEY7,"": KEY8,CHR$(2)
40 NF$= " not found!"
50 NV$= " is not a valid entry!"
60 IC$=""
70 CLS
80 TI$=TIME$
90 PRINT@ 0, "The current time is ";TI$
100 PRINT "What city does this correspond to?"
110 INPUT IC$
120 OPEN "CITIES" FOR INPUT AS 1

```



```

130 IF EOF(1) THEN PRINT IC$;NF$;: GOTO 360
140 LINE INPUT #1,FC$
150 IF INSTR(1,FC$,IC$)=0 GOTO 130
160 PS=INSTR(1,FC$,CHR$(9))
170 IF PS=0 THEN PRINT FC$;NV$: GOTO 360
180 HZ=VAL(MID$(FC$,PS+1,2))
190 IF HZ > 23 OR HZ < 0 THEN PRINT FC$;NV$: GOTO 360
200 CLOSE 1
210 PRINT "What city do you want the time for?"
220 INPUT IC$
230 OPEN "CITIES" FOR INPUT AS 1
240 IF EOF(1) THEN PRINT IC$;NF$: GOTO 360
250 LINE INPUT #1,FC$
260 IF INSTR(1,FC$,IC$)=0 GOTO 240
270 PS=INSTR(1,FC$,CHR$(9))
280 IF PS=0 THEN PRINT IC$;NV$: GOTO 360
290 DZ=VAL(MID$(FC$,PS+1,2))
300 IF DZ > 23 OR DZ < 0 THEN PRINT CT$;NV$: GOTO 360
310 CLOSE 1
320 OT=HZ-DZ+24
330 DT$=STR$((OT+VAL(MID$(TI$,1,2)))MOD24) +
    MID$(TI$,3,6)
340 CT$=MID$(FC$,1,INSTR(1,FC$,CHR$(9))-1)
350 PRINT "The time in ";CT$;" is";DT$
360 CLOSE
370 PRINT@ 280,"More";: PRINT@ 314,"Menu";
380 A$=INKEY$: IF A$="" THEN 380
390 IF A$=CHR$(1) THEN 20
400 IF A$ <> CHR$(2) THEN 380
410 CALL 23164,0,23366: CALL 27795: MENU
420 IF ERR <> 52 THEN PRINT "Error #";ERR;" in line
    #";ERL: STOP
430 OPEN "CITIES" FOR OUTPUT AS 1
440 CLOSE 1
450 RESUME

```

Once you've typed in the entire program, check it line by line for errors. To do so, save it in the Model 100's memory by typing

SAVE "TIMZON" and press ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100. (See your cassette recorder's and Model 100's owner's manuals for details on volume control.) Be sure that you're in BASIC and the TIMZON

program is loaded into memory; then press the recorder's RECORD and PLAY buttons and type

CSAVE "TIMZON" ENTER

When the BASIC OK prompt and blinking cursor appear, you can return to the Model 100 Main Menu by pressing F8, and the program will be listed as TIMZON.BA.

How TIMZON Works

TIMZON converts current local time into the current time of a distant place. It first displays the current time, then it prompts you for the name of the city that you are in—the city to which the current time corresponds. The program searches for that city in the TEXT file CITIES.DO (created separately). If it finds the city, it extracts the time zone and then prompts for the destination city. After you enter the name of a city, the program again searches the CITIES.DO file. If it finds that city, it converts the local time into the time for that city, according to the following formula:

$$\text{dest.time} = ((\text{home timezone} - \text{dest. timezone}) \text{ MOD } 24) + \text{home time}$$

After the program returns the new time, you may press F1 to repeat the operation using a different city, or else press F8 to return to the Model 100 Main Menu.

If a city is not found, or if it is found but has an invalid time zone (that is, greater than 23 or less than 0), the program displays an error message and lets you try again or return to the Main Menu. If the CITIES.DO file does not exist, the program creates the file. However, since the file is empty, no cities will be found.

The variables used in TIMZON.BA are defined in Table 5-3.

The TEXT File CITIES.DO

To use TIMZON, you'll need to create the TEXT data file for the cities for which you want times. To work correctly, the BASIC program TIMZON.BA requires that the TEXT data file be named CITIES.DO.

Table 5-3. *Variables Used in TIMZON.BA*

Variable	Definition
NF\$	City record not found message
NV\$	City time zone not valid message
FC\$	Filed city record (city name + time zone)
IC\$	User input city name
TI\$	Current system time
CT\$	Destination city (from file)
DT\$	Time in destination city
PS	Position in IC string of tab character
HZ	Time zone of home city
DZ	Time zone of destination city
OT	Time zone offset to destination city

To create CITIES.DO from the Model 100, move the Main Menu cursor to TEXT and press ENTER. When you're asked

File to edit?

type in

CITIES and press ENTER

When the Model 100 display clears, you can begin entering the information about cities and time zones. For each city

- Type in its name
- Press TAB
- Type in the city's time zone number
- Press ENTER.

For example, Fort Worth, Texas, is six time zones west of Greenwich, so you would enter

Fort Worth TAB 6 ENTER

Type the city name exactly as you will access it since the program can't correlate, for example, "NYC" with "New York City." Also, be sure to enter the local time zone, so that the program will know what time to base its calculations on.

When you have entered all the cities you are interested in, press F8 to return to the Model 100 Main Menu, where the file name

CITIES.DO will be listed. If you later want to add or delete a city, just use the TEXT program to edit the CITIES.DO file. It doesn't matter in what order you enter the cities.

We also suggest that you save the TEXT data file on cassette tape just as you saved the TIMZON program. To save a TEXT file on tape, be sure the file to be saved is displayed on the screen, then press F3. Type in the name you want the file saved under. In this example, press F3, and type **CITIES** and press ENTER. Later, when you want to load it from tape, create a TEXT .DO file named **CITIES**, press F2, and type in the name you previously saved the file under.

USING THE TIMZON PROGRAM

Once you have entered the time zone information, you can use the TIMZON program. To run it, position the Main Menu cursor on top of the word TIMZON.BA and press ENTER. TIMZON will display the message

The current time is ...

followed by the current time in 24-hour format; for instance:

The current time is 19:32:00.

The program will then ask you in what city this time is current:

What city does this correspond to?

Type in a name that was previously entered into the CITIES.DO file. For example, if you are in Los Angeles, and the time displayed is the correct Los Angeles time, type

Los Angeles and press ENTER

TIMZON then prompts

What city do you want the time for?

Type in a name that was previously entered into the CITIES.DO file. For example, type in

Dallas and press ENTER

The program will respond

The time in Dallas is 17:32:00

The entire sample sequence we've been describing might look like Figure 5-2.

If the program can't find the city name in CITIES.DO, it will display the message "CAN'T FIND..." followed by the name you typed in. For example, if you typed in Tyler, Texas, and Tyler was not listed in CITIES.DO, you would see the message

Can't find Tyler!

If you want to run the program again, press F1 (for MORE). If you want to exit from the program, press F8.

TIMZON also lets you enter any unique abbreviation for a city. You need type in only enough to make that city name unique from any other in the CITIES.DO file. For example, say you have entries for Berkeley and Berlin; to get the time in Berkeley, type in **Berk**, and to get the time in Berlin, type in **Berl**. If you typed in *only* **Ber**, the program would give you the time for whichever city was listed first in the CITIES.DO file.

METRIC CONVERSION

Someday, we keep hearing, the United States will forsake the English system of weights and measures and "go metric" like the rest of the world. Unfortunately, Dave Lammert, when traveling in countries like Canada, didn't have the luxury of a "someday." He had to think in terms of metrics, and it caused him problems. (Instead of gallons of helicopter fuel, he had to get used to liters. And it wasn't 352 miles from Toronto to Montreal, but 566 kilometers.)

```
The current time is 19:32:00.
What city does this correspond to? Los Angeles
What city do you want the time for? Dallas
The time in Dallas is 17:32.
```

More

Menu

Figure 5-2. Use of TIMZON.BA

To calculate these differences, Dave performs metric conversion by using Metric Convert, the program described in this section. This program converts length, weight, and quantities from the English to metric system or vice versa.

CONNECTING THE HARDWARE

Metric Convert requires no special hardware connections—although we suggest that once you type in the program, you connect a cassette recorder to your Model 100 and save the program on tape. You can also connect a printer to the Model 100. If you do so, or intend to do so, you'll have to change all PRINT statements in the program to LPRINT.

This program requires that your Model 100 have at least 16K of RAM.

SETTING UP THE SOFTWARE

To type in the Metric Convert program, be sure the Main Menu cursor is on the word BASIC (it should be there when you turn the power on) and press ENTER. You will be in BASIC. Type in the program just as it is listed. Be sure to enter the line numbers (the numbers 5, 10, 20, 30, and so on, at the beginning of each line) and to end each line by pressing ENTER.

```

5 ' *** Metric Converter -- Copyright 1983 Sayre &
  Erickson ***
10 EM$= " an illegal conversion!"
20 LM$= "This is"
30 AM=0
40 CLS: PRINT@ 2, "Metric Convert Metric/English
  Converter"
50 PRINT@ 49, "1) Metric to English"
60 PRINT@ 89, "2) English to Metric"
70 PRINT@ 171, "Press <1> or <2>"
80 PRINT@ 314, "Menu";
90 A$=INKEY$
100 IF A$="1" THEN GOSUB 140 ELSE IF A$="2" THEN GOSUB
  1000 ELSE IF A$="M" THEN MENU ELSE 90
110 PRINT: PRINT "Press any key to continue..."
120 A$=INKEY$: IF A$="" THEN 120
130 GOTO 30
140 CLS: PRINT@ 14, "Convert From:"

```

```
150 GOSUB 1840
160 CF=VAL(INKEY$)
170 IF CF < 1 OR CF > 9 THEN 160
180 CLS: PRINT@ 14, "Convert to:"
190 GOSUB 1910
200 CT=VAL(INKEY$)
210 IF CT < 1 OR CT > 8 THEN 200
220 ON CF GOSUB 240,300,360,460,560,660,760,840,920
230 RETURN
240 CLS: INPUT "Enter # of grams: ";AM
250 PRINT LM$;
260 IF CT <> 1 THEN 280
270 PRINT CSNG(AM/28.35); "ounces": GOTO 290
280 IF CT=2 THEN PRINT CSNG(AM/453.6); "pounds" ELSE
    PRINT EM$
290 RETURN
300 CLS: INPUT "Enter # of kilograms: ";AM
310 PRINT LM$;
320 IF CT <> 1 THEN 340
330 PRINT CSNG(AM/0.02835); "ounces": GOTO 350
340 IF CT=2 THEN PRINT CSNG(AM/0.4536); "pounds" ELSE
    PRINT EM$
350 RETURN
360 CLS: INPUT "Enter # of millimeters: ";AM
370 PRINT LM$;
380 IF CT <> 3 THEN 400
390 PRINT CSNG(AM/25.4); "inches": GOTO 450
400 IF CT <> 4 THEN 420
410 PRINT CSNG(AM/304.8); "feet": GOTO 450
420 IF CT <> 5 THEN 440
430 PRINT CSNG(AM/914.4); "yards": GOTO 450
440 IF CT=6 THEN PRINT CSNG(AM/1609000); "miles" ELSE
    PRINT EM$
450 RETURN
460 CLS: INPUT "Enter # of centimeters: ";AM
470 PRINT LM$;
480 IF CT <> 3 THEN 500
490 PRINT CSNG(AM/2.54); "inches": GOTO 550
500 IF CT <> 4 THEN 520
510 PRINT CSNG(AM/30.48); "feet": GOTO 550
520 IF CT <> 5 THEN 540
530 PRINT CSNG(AM/91.44); "yards": GOTO 550
540 IF CT=6 THEN PRINT CSNG(AM/160900); "miles" ELSE
    PRINT EM$
550 RETURN
560 CLS: INPUT "Enter # of meters: ";AM
570 PRINT LM$;
```

```
580 IF CT <> 3 THEN 600
590 PRINT CSNG(AM/.0254); "inches": GOTO 650
600 IF CT <> 4 THEN 620
610 PRINT CSNG(AM/0.3048); "feet": GOTO 650
620 IF CT <> 5 THEN 640
630 PRINT CSNG(AM/.9144); "yards": GOTO 650
640 IF CT=6 THEN PRINT CSNG(AM/1609); "miles" ELSE
    PRINT EM$
650 RETURN
660 CLS: INPUT "Enter # of kilometers: ";AM
670 PRINT LM$;
680 IF CT <> 3 THEN 700
690 PRINT CSNG(AM/.0000254); "inches": GOTO 750
700 IF CT <> 4 THEN 720
710 PRINT CSNG(AM/.0003048); "feet": GOTO 750
720 IF CT <> 5 THEN 740
730 PRINT CSNG(AM/.0009144); "yards": GOTO 750
740 IF CT=6 THEN PRINT CSNG(AM/1.609); "miles" ELSE
    PRINT EM$
750 RETURN
760 CLS: INPUT "Enter # of milliliters: ";AM
770 PRINT LM$;
780 IF CT <> 1 THEN 800
790 PRINT CSNG(AM/29.57); "ounces": GOTO 830
800 IF CT <> 7 THEN 820
810 PRINT CSNG(AM/946.2); "quarts": GOTO 830
820 IF CT=8 THEN PRINT CSNG(AM/3785); "gallons" ELSE
    PRINT EM$
830 RETURN
840 CLS: INPUT "Enter # of liters: ";AM
850 PRINT LM$;
860 IF CT <> 1 THEN 880
870 PRINT CSNG(AM/.02958); "ounces": GOTO 910
880 IF CT <> 7 THEN 900
890 PRINT CSNG(AM/.9462); "quarts": GOTO 910
900 IF CT=8 THEN PRINT CSNG(AM/3.785); "gallons" ELSE
    PRINT EM$
910 RETURN
920 CLS: INPUT "Enter # of British gallons: ";AM
930 PRINT LM$;
940 IF CT <> 1 THEN 960
950 PRINT CSNG(AM*153.5); "ounces": GOTO 990
960 IF CT <> 7 THEN 980
970 PRINT CSNG(AM*4.797); "quarts": GOTO 990
980 IF CT=8 THEN PRINT CSNG(AM*1.194); "U.S. gallons"
    ELSE PRINT EM$
990 RETURN
```

```
1000 CLS: PRINT@ 14, "Convert from:"
1010 GOSUB 1910
1020 CF=VAL(INKEY$)
1030 IF CF < 1 OR CF > 8 GOTO 1020
1040 CLS: PRINT@ 14, "Convert to:"
1050 GOSUB 1840
1060 CT=VAL(INKEY$)
1070 IF CT < 1 OR CT > 9 GOTO 1060
1080 ON CF GOSUB 1100,1220,1280,1380,1480,
    1580,1680,1760
1090 RETURN
1100 CLS: INPUT "Enter # of ounces: ";Ah
1110 PRINT LM$;
1120 IF CT <> 1 THEN 1140
1130 PRINT CSNG(AM*28.35); "grams": GOTO 1210
1140 IF CT <> 2 THEN 1160
1150 PRINT CSNG(AM*0.02835); "kilograms": GOTO 1210
1160 IF CT <> 7 THEN 1180
1170 PRINT CSNG(AM*29.57); "milliliters": GOTO 1210
1180 IF CT <> 8 THEN 1200
1190 PRINT CSNG(AM*.02957); "liters": GOTO 1210
1200 IF CT=9 THEN PRINT CSNG(AM/153.5); "British
    gallons" ELSE PRINT EM$
1210 RETURN
1220 CLS: INPUT "Enter # of pounds: ";AM
1230 PRINT LM$;
1240 IF CT <> 1 THEN 1260
1250 PRINT CSNG(AM*453.6); "grams": GOTO 1270
1260 IF CT=2 THEN PRINT CSNG(AM*.4536); "kilograms"
    ELSE PRINT EM$
1270 RETURN
1280 CLS: INPUT "Enter # of inches: ";AM
1290 PRINT LM$;
1300 IF CT <> 3 THEN 1320
1310 PRINT CSNG(AM*25.4); "millimeters": GOTO 1370
1320 IF CT <> 4 THEN 1340
1330 PRINT CSNG(AM*2.54); "centimeters": GOTO 1370
1340 IF CT <> 5 THEN 1360
1350 PRINT CSNG(AM*.0254); "meters": GOTO 1370
1360 IF CT=6 THEN PRINT CSNG(AM*.0000254); "kilometers"
    ELSE PRINT EM$
1370 RETURN
1380 CLS: INPUT "Enter # of feet: ";AM
1390 PRINT LM$;
1400 IF CT <> 3 THEN 1420
1410 PRINT CSNG(AM*304.8); "millimeters": GOTO 1470
1420 IF CT <> 4 THEN 1440
```

```

1430 PRINT CSNG(AM*30.48); "centimeters": GOTO 1470
1440 IF CT <> 5 THEN 1460
1450 PRINT CSNG(AM*.3048); "meters": GOTO 1470
1460 IF CT=6 THEN PRINT CSNG(AM*.0003048); "kilometers"
      ELSE PRINT EM$
1470 RETURN
1480 CLS: INPUT "Enter # of yards: ";AM
1490 PRINT LM$;
1500 IF CT <> 3 THEN 1520
1510 PRINT CSNG(AM*914.4); "millimeters": GOTO 1570
1520 IF CT <> 4 THEN 1540
1530 PRINT CSNG(AM*91.44); "centimeters": GOTO 1570
1540 IF CT <> 5 THEN 1560
1550 PRINT CSNG(AM*.9144); "meters": GOTO 1570
1560 IF CT=6 THEN PRINT CSNG(AM*.0009144); "kilometers"
      ELSE PRINT EM$
1570 RETURN
1580 CLS: INPUT "Enter # of miles: ";AM
1590 PRINT LM$;
1600 IF CT <> 3 THEN 1620
1610 PRINT CSNG(AM*1609000); "millimeters": GOTO 1670
1620 IF CT <> 4 THEN 1640
1630 PRINT CSNG(AM*160900); "centimeters": GOTO 1670
1640 IF CT <> 5 THEN 1660
1650 PRINT CSNG(AM*1609); "meters": GOTO 1670
1660 IF CT=6 THEN PRINT CSNG(AM*1.609); "kilometers"
      ELSE PRINT EM$
1670 RETURN
1680 CLS: INPUT "Enter # of quarts: ";AM
1690 PRINT LM$;
1700 IF CT <> 7 THEN 1720
1710 PRINT CSNG(AM*946.2); "milliliters": GOTO 1750
1720 IF CT <> 8 THEN 1740
1730 PRINT CSNG(AM*946.2); "liters": GOTO 1750
1740 IF CT=9 THEN PRINT CSNG(AM*.2085); "British
      gallons" ELSE PRINT EM$
1750 RETURN
1760 CLS: INPUT "Enter # of gallons: ";AM
1770 PRINT LM$;
1780 IF CT <> 7 THEN 1800
1790 PRINT CSNG(AM*3785); "milliliters": GOTO 1830
1800 IF CT <> 8 THEN 1820
1810 PRINT CSNG(AM*3.785); "liters": GOTO 1830
1820 IF CT=9 THEN PRINT CSNG(AM*.8339); "British
      gallons" ELSE PRINT EM$
1830 RETURN
1840 PRINT@ 45,"1) Grams           6) Kilometers"

```



```

1850 PRINT@ 85,"2) Kilograms      7) Milliliters"
1860 PRINT@ 125,"3) Millimeters  8) Liters"
1870 PRINT@ 165,"4) Centimeters  9) British gallons"
1880 PRINT@ 205,"5) Meters"
1890 PRINT@ 294,"Press <1>-<9>";
1900 RETURN
1910 PRINT@ 45,"1) Ounces          5) Yards"
1920 PRINT@ 85,"2) Pounds          6) Miles"
1930 PRINT@ 125,"3) Inches         7) Quarts"
1940 PRINT@ 165,"4) Feet           8) Gallons "
1950 PRINT@ 252,"Press <1>-<8>";
1960 RETURN

```

When you've finished typing the program, check it line by line for errors. To do so, save it in the Model 100's memory by typing

SAVE "METRIC" ENTER

Then follow the steps described for checking the Metric converter program. When you return to the Model 100 Main Menu, the file name METRIC.BA will be displayed. If you plan on using the program from time to time, be sure to save it on cassette tape as well. Once a cassette recorder is properly connected as also described earlier in this chapter, type

CSAVE "METRIC" and press ENTER

The variables used in the Metric Convert program are listed in Table 5-4.

Table 5-4. Variables Used in the Metric Convert Program

Variable	Definition
A\$	Response to query
AM	Amount of "from" units
CF	"Convert from" number
CT	"Convert to" number
EM\$	Error message
LM\$	Leading result message

HOW THE METRIC CONVERT PROGRAM WORKS

Although it is a relatively long program, Metric Convert is extremely simple to use. When you run the program, you're presented with the Metric Convert menu. This menu asks you whether you want to convert from English to metric, in which case you type 1, or from metric to English, in which case you type 2.

Next, the "Convert from" menu will appear, and you will have eight or nine options, depending on which system you're converting from. For instance, if you want to convert from "Pounds," press the Model 100 number key that corresponds to the number beside the word "Pounds."

After that, the "Convert to" menu will be displayed, listing conversion units. If you wanted to convert from pounds, for instance, "Kilograms" would be one of the selections. Press the number key that corresponds to the number beside "Kilograms." (Don't worry: the program will not let you make an illegal conversion; for instance, you can't convert pounds to kilometers.)

Once you've told the program what units to convert and to what new units, Metric Convert will display the "Amount" prompt (for example, how many pounds do you want to convert to kilograms?). After you type in an amount, the answer is displayed on the screen. It remains there until you press a key (any key except BREAK), which returns you to the Metric Convert main menu. You can either perform another conversion, or you can press F8 and return to the Model 100 Main Menu.

Figure 5-3 gives you a flow chart of how the Metric Convert program works.

USING THE METRIC CONVERT PROGRAM

To use the program, move the Model 100 Main Menu cursor so that it is on the word METRIC.BA and press ENTER. The program will display a menu like that in Figure 5-4. If you press 1, the metric-to-English "Convert from" menu will appear (see Figure 5-5). If you press 2, the English-to-metric "Convert from" menu will be displayed (see Figure 5-6).

Once either of the "Convert from" menus is on the screen, press the number key corresponding to the unit of measurement you want to *convert from*. For example, to convert from meters, press 5.

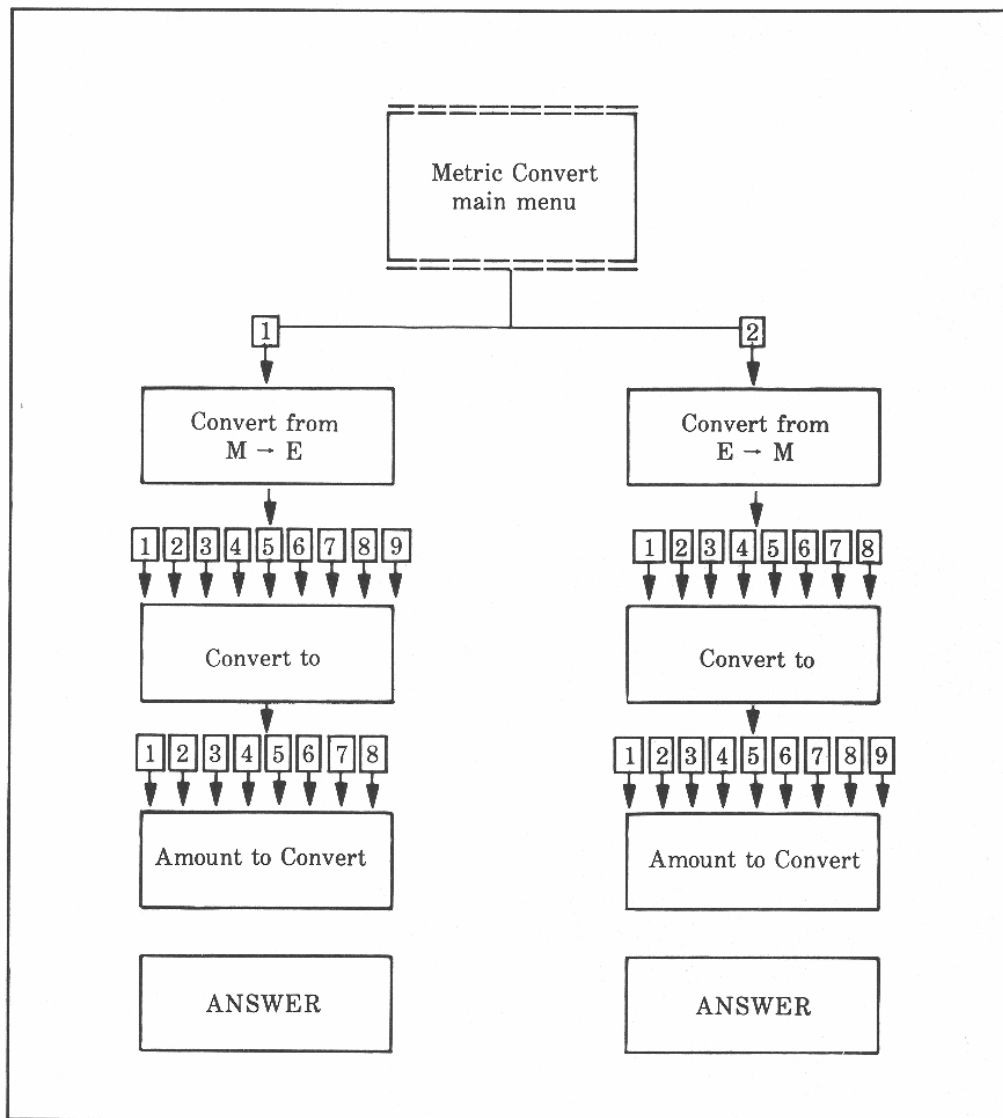


Figure 5-3. Flowchart of the Metric Convert program

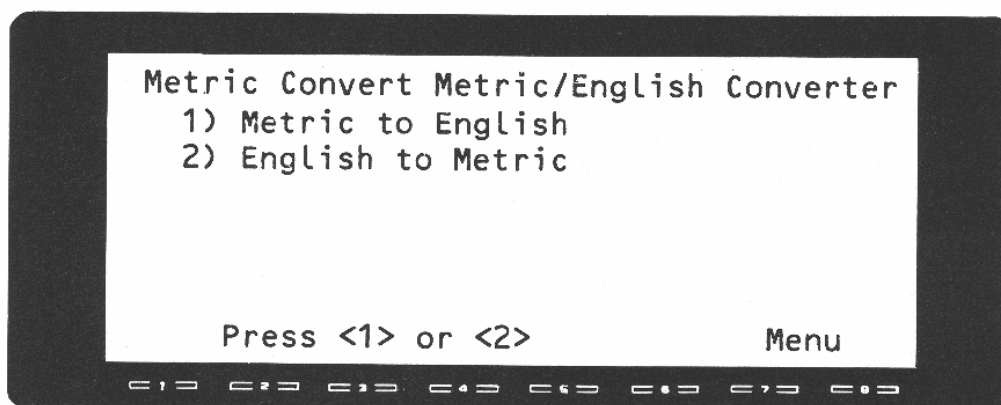


Figure 5-4. The Metric Convert main menu

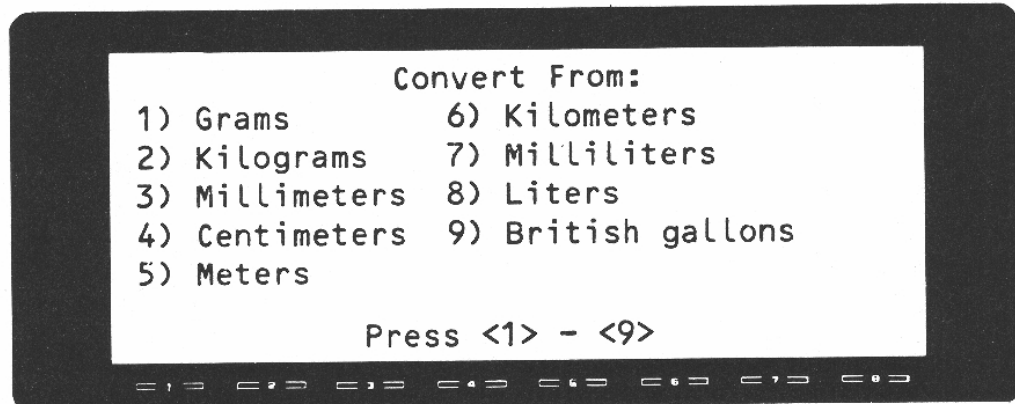


Figure 5-5. The metric-to-English menu

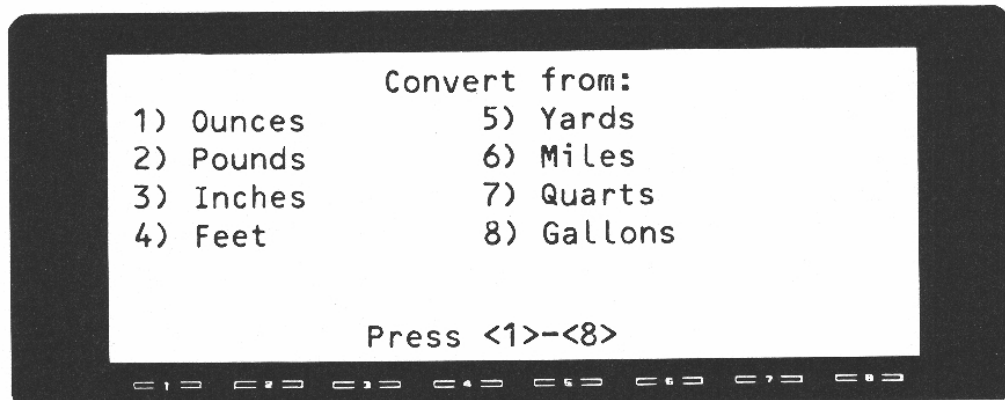


Figure 5-6. The English-to-metric menu

(See Figure 5-5.) After you press a key, the program displays the "Convert to" menu. Press the number key corresponding to the unit of measurement you want to *convert to*. For example, to convert to quarts, press 7.

The program then prompts you for the number of "from" units you have. Enter any number. The program checks to see if the "from" units are convertible to the "to" units. If they are, the answer is displayed on the screen. If they are not (for example, if you try to convert from meters to quarts), the Metric Convert program prints the message

This is an illegal conversion!

Whether you get this message or an answer, the program then prompts you

Press any key to continue

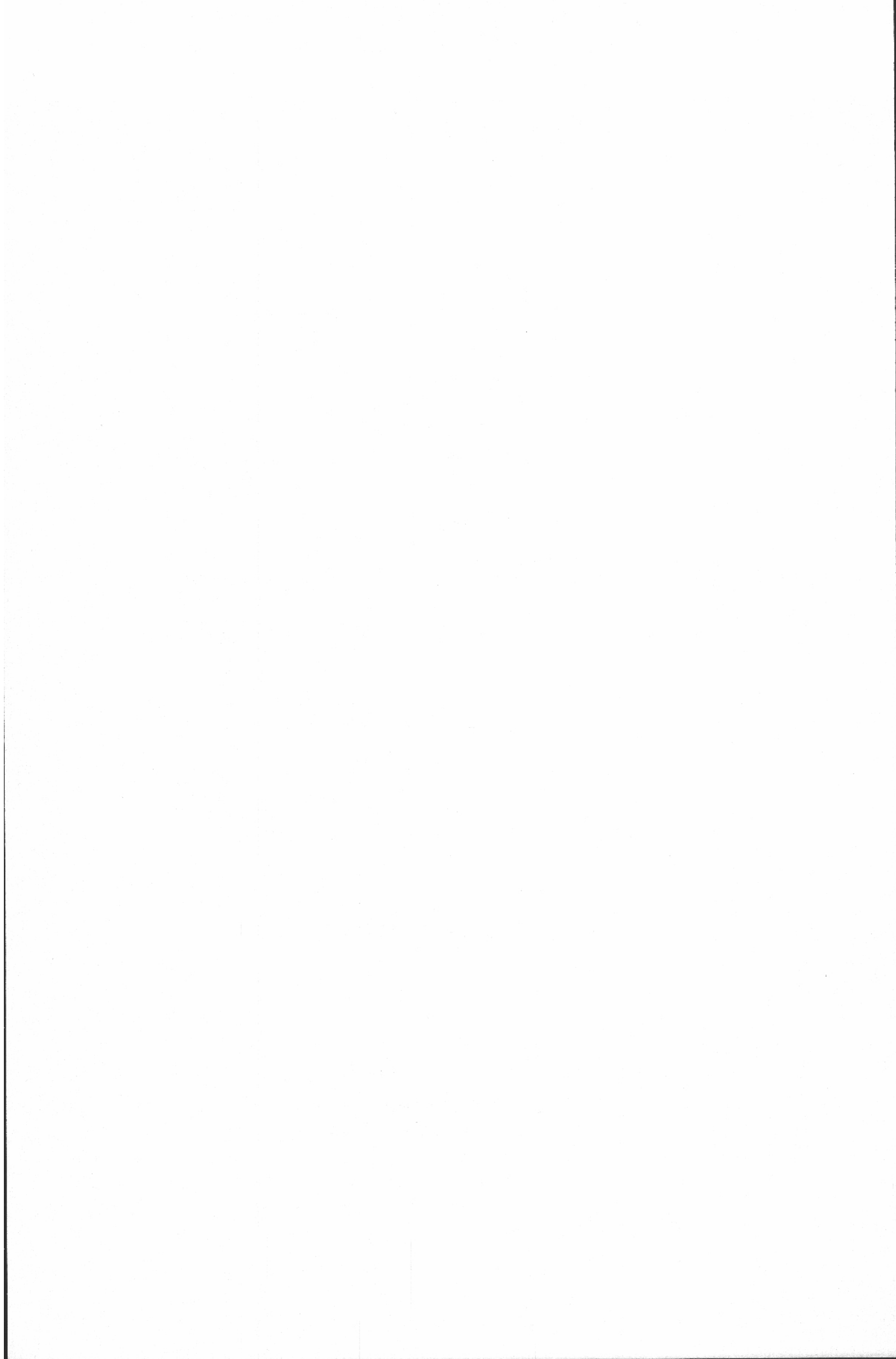
Just as the prompt indicates, press any key (except BREAK) to return to the Metric Convert main menu. You may then perform another conversion, or press F8 to return to the Model 100 Main Menu.

For instance, when Dave was working on a fuel contract and needed to convert 12,500 gallons of aviation fuel to liters, this is what he did:

1. He positioned the Model 100 Main Menu cursor over the word METRIC.BA and pressed ENTER.
2. When the Metric Convert main menu appeared, he typed 2 to select English to metric.
3. When the English-to-metric "Convert from" menu appeared, he typed 8 to select "Gallons."
4. When the "Convert to" menu appeared, he typed 8 to select "Liters."
5. When prompted to "Enter # of gallons:", he typed 12500 and pressed ENTER.
6. The answer was then displayed on the screen:

This is 47312.5 liters

Dave pressed the space bar (he could have pressed any key except BREAK), and the Metric Convert main menu reappeared so that he could perform another conversion or, by pressing F8, return to the Model 100 Main Menu.



PART

The Model 100 In the Office



Probably no office machine since the telephone has had more impact on the way business is done than the computer. Everything from writing letters to selling stocks has been revolutionized by desktop and other models of computers.

Sue Campbell is a merchandising executive for a graphic arts and printing supply firm, and her on-the-spot decisions can make or cost her company millions of dollars. Since most of Sue's job involves decision making, her biggest need is for information that is current, accurate, and complete. The problem is how to get it as quickly as possible. For the past couple of years Sue has used everything from telephone directories to personal computers.

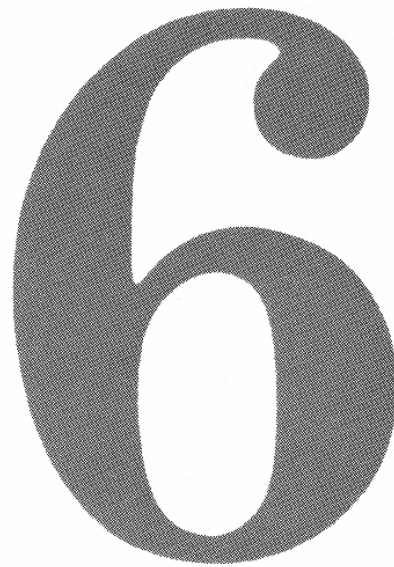
What Sue knew she needed was a single, easy-to-use piece of office equipment that filled most of her business information needs. The Model 100 did just that for her. With a Model 100, Sue was able to clear everything else off her desk except a telephone.

Essentially, Sue used the Model 100 for several daily tasks that included:

- Writing memos. Her secretary would regularly upload Sue's memos from the Model 100 into the office word processing computer, print them out, and distribute them.
- Appointment scheduling. Sue no longer needed the big, awkward appointment book on her desk once the Model 100 was stationed there. And like her memos, her schedules could be uploaded by her secretary.
- Phone directory and dialer. Sue's old automatic phone dialer could store only 32 phone numbers and was complicated to use. The Model 100 stored hundreds of numbers and required that she press only two function keys—one to find the number and the other to dial it.
- Address book. Unlike her old automatic phone directory and dialer, the Model 100 allowed Sue to keep addresses next to the phone numbers.
- Clock and calendar. The Model 100's built-in clock and calendar allowed Sue to get rid of their desktop counterparts.
- Personal computer. Sue had always kept a large personal computer on her desk to keep track of spread sheets and stock quotes. Now, with the Model 100, she still had a personal computer, but she also had enough room to work with it.
- Modem. Sue had used her large personal computer for communication with Dow Jones to keep track of stocks. Doing so had required special software and a modem. With the Model 100, all of the software Sue needed was built-in—as was the modem.
- Calculator. Although a calculator was one of the first electronic tools Sue ever had on her desk, she was able to put it away when she got her Model 100, since the computer could do everything a calculator could do and more.

In this section, we'll show you how one business executive used the Model 100 in the office. Although we discuss the Model 100 as a stationary office tool, don't forget that it can travel with you on business. So while you can't take your office with you on a trip or home at night, you can take most of your office equipment and information. And that's what is really important.

Writing a Letter or Report



The Model 100's TEXT program incorporates most of the features of a first-class word processor. With it, for instance, Sue Campbell could "cut and paste" entire blocks of text, copy files, and even use embedded printer control codes. However, Sue had one problem with TEXT; when she printed out a letter or report, she couldn't "format" it—that is, she couldn't specify the margins and page length. The printed page never looked the way she wanted it to look. She tried to use carriage returns to "manually" set up the format she wanted, but doing so was awkward and slow. Her only other choice seemed to be to "upload" reports and letters to a word processing computer and then print them out. But that defeated much of the practicality of the Model 100.

The program we provide in this chapter solved Sue's problem by allowing her to specify the format of the printed page. She

could specify not only top and bottom and side margins, but also line spacing (single versus double), and she could add page numbers. Furthermore, the BASIC program is simple enough that she could change it to suit her particular needs. (For example, if you want to use the Model 100 with a serial printer, you need change only one line of the program.)

CONNECTING THE HARDWARE

To use this program, you must have a parallel printer connected to your Model 100. You can make a proper connection only with a Radio Shack Model 100 Parallel Printer cable. Before connecting a printer to the computer, be sure the power to both units is *off*. To connect a printer to the Model 100, follow these steps:

1. Connect the large rectangular end of the cable to the printer.
2. Connect the small rectangular end of the cable to the Model 100. Be sure the cable exits downward from the computer. (See Figure 6-1.) Do not force the connection or you can damage your computer. If the cable won't slide onto the connector easily, you may be trying it upside down.
3. Load paper into the printer so that the top line of the next page is immediately below the print head position.
4. Connect the printer's power cord to a wall outlet and turn the printer's power on.

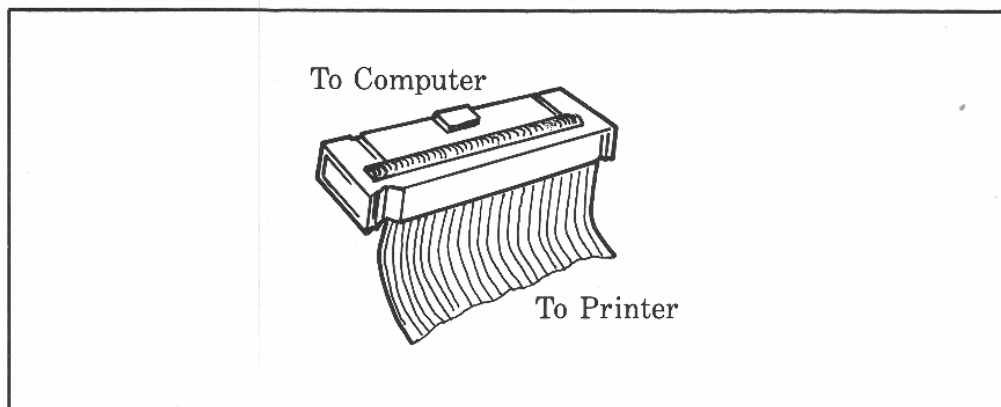


Figure 6-1. Printer cable connection to Model 100

5. Turn the Model 100's power on.

You also have the option of connecting a cassette recorder to the Model 100. (The program in this chapter allows you to print directly from a cassette file.)

As long as your other TEXT files and BASIC programs don't take up too much of your Model 100 storage space, this program can be used with an 8K Model 100.

SETTING UP THE SOFTWARE

TXTFMT (short for "Text Formatter") is a BASIC program that interacts with a TEXT word processing file. Consequently, you'll need to type in both the BASIC program and the TEXT file you want to print out. The BASIC program will read whatever TEXT file you tell it to.

To type in TXTFMT, move the Model 100 Main Menu cursor to the word BASIC and press ENTER. BASIC will display copyright information and the OK prompt, followed by a blinking cursor.

Then type in the program just as it is listed. Be sure to enter the line numbers (the numbers 5, 10, 20, 30, and so on at the beginning of each line) and to end each line by pressing ENTER.

```

5 ' *** Text Formatter -- Copyright 1983 Sayre &
  Erickson ***
10 ON ERROR GOTO 640: EM$= "Printer not ready!!"
20 CLS
30 PRINT "Text Formatter Program"
40 INPUT "Name of text file";FN$
50 OPEN FN$ FOR INPUT AS 1
60 PL=66: CR$=CHR$(13)
70 INPUT "Top margin (1-66)";TM: IF TM > PL OR TM < 1
  THEN 70
80 INPUT "Bottom margin (2-66)";BM: IF BM > PL OR BM <
  2 OR BM < TM THEN 80
90 INPUT "Left margin (1-80)";LM: IF LM > 80 OR LM < 1
  THEN 90
100 IF LM=1 THEN TB$="" ELSE TB$=SPACE$(LM-1)
110 TS=LEN(TB$)
120 INPUT "Right margin (2-80)";RM: IF RM > 80 OR RM <
  2 OR RM < LM THEN 120
130 INPUT "Single space or double space(S/D)";AN$

```

```

140 IF AN$= "S" OR AN$="s" THEN SP$="" ELSE IF AN$="D"
    OR AN$= "d" THEN SP$=CHR$(10) ELSE 130
150 INPUT "Insert page numbers (Y/N)";AN$
160 IF (AN$="Y" OR AN$="y") AND BM < PL-2 THEN
    CT=(RM+LM)/2-6 ELSE IF AN$="N" OR AN$="n" THEN CT=0
    ELSE 150
170 OPEN "LPT:" FOR OUTPUT AS 2
180 LC=1
190 LN$=TB$: CC=TS
200 FOR LC=1 TO TM-1
210 PRINT#2,""
220 NEXT LC
230 WD$="":: PC=1
240 IF EOF(1) THEN 290
250 C$=INPUT$(1,1)
260 IF C$=CR$ THEN GOSUB 380 ELSE WD$=WD$+C$
270 IF C$=" " OR C$=CHR$(9) THEN GOSUB 450
280 GOTO 240
290 GOSUB 510
300 IF CT=0 OR LC=TM THEN 370
310 LN$=""
320 FOR I=LC TO PL-3
330 PRINT#2,LN$
340 NEXT I
350 LC=I
360 GOSUB 510
370 MENU
380 C$=INPUT$(1,1)
390 WS=LEN(WD$)
400 IF WS + CC <= RM THEN LN$=LN$ + WD$ ELSE GOSUB 510:
    LN$=TB$+WD$
410 GOSUB 510
420 LN$=TB$: CC=TS
430 WD$=""
440 RETURN
450 IF C$=CHR$(9) THEN WD$=WD$ + SPACES$(8)
460 IF WD$="" THEN WD$=" "
470 WS=LEN(WD$)
480 IF WS + CC <= RM THEN LN$=LN$ + WD$: CC=CC + WS
    ELSE GOSUB 510: LN$=TB$ + WD$: CC=TS + WS
490 WD$=""
500 RETURN
510 PRINT#2,LN$ + SP$
520 IF SP$="" THEN LC=LC+1 ELSE LC=LC+2
530 IF LC < BM THEN 630
540 IF LC >= PL-2 THEN 560
550 PRINT#2,"": LC=LC+1: GOTO 540

```

```

560 IF CT <> 0 THEN PRINT#2,TAB(CT),"-";PC;"-";:
    PC=PC+1
570 PRINT#2,"": PRINT#2,""
580 IF EOF(1) THEN 630 ELSE PRINT "Press any key when
    ready for next page"
590 AN$=INKEY$: IF AN$="" THEN 590
600 FOR LC=0 TO TM-1
610 PRINT#2,""
620 NEXT LC
630 RETURN
640 IF ERR <> 52 AND ERR <> 55 THEN PRINT
    "Error";ERR;"in line #";ERL: STOP
650 PRINT FN$; " does not exist"
660 PRINT "Press <M> to return to the menu,"
670 PRINT "Press <F> to see a list of RAM files,"
680 PRINT "Press any other key to try again"
690 AN$=INKEY$: IF AN$="" THEN 690
700 IF AN$="M" OR AN$="m" THEN MENU
710 IF AN$ <> "F" AND AN$ <> "f" THEN 750
720 FILES
730 PRINT "Press any key to continue"
740 AN$=INKEY$: IF AN$="" THEN 740
750 RESUME 10

```

When you've finished typing the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "TXTFMT" ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100 (see your owner's manual for details on volume control) and simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Text Formatter program is loaded into memory; then type

CSAVE "TXTFMT" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as TXTFMT.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the

line with the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

HOW TXTFMT.BA WORKS

In case you want to modify TXTFMT, we'll describe how the program works. If you're not interested in modifying the program just yet—you just want to use it—skip this section and go on to "Using the TXTFMT Program."

The first several lines of TXTFMT.BA prompt you for input data from the keyboard. As you enter the data, the program verifies it; if it is invalid, the program prompts you until you get it right. Note the following restrictions:

$1 \leq \text{left margin} < \text{right margin} \leq 80$

$1 \leq \text{top margin} < \text{bottom margin} \leq \text{page length}$

and when page numbers are included,

$1 \leq \text{top margin} < \text{bottom margin} \leq \text{page length} - 3$

The program then opens the printer file, writes the required number of lines to get to the top margin, and begins inputting characters, one at a time, from the text file into the printer file.

The program uses a hierarchy of collected data in determining when and what to print. This hierarchy consists of

- *Characters* The individual units of input data from the text file.
- *Words* Made up of one or more characters, delimited by blank characters.
- *Paragraphs* Made up of one or more words, delimited by carriage returns.

As the program inputs characters, it checks them against the delimiters (a blank, tab, or carriage return). If the character is not one of these, the program adds it to the current word WD\$. The program continues adding characters until it reaches a delimiter. If it reaches a blank, the program knows that it has reached the end of a word. If the current word is null, the program adds in the blank character (this allows consecutive blanks). It then adds the number of characters in the word to the number of characters in

the current line, LN\$, and compares this value to the number of characters permitted per line (that is, restricted by the right margin).

If the current line and the new word will fit on one line, the program concatenates the new word onto the current line and adds the number of characters of both. Finally, the program sets WD\$ equal to the null string.

If the current line and the new word won't fit on one line, the program calls a subroutine to print the current line. It then sets the current line equal to the concatenation of the tab to the left margin, TB\$, and the new word, WD\$. It sets the character count of the current line equal to the sum of the number of characters in TB\$ (TS) and WD\$ (WS). Finally, the program sets WD\$ equal to the null string.

If the program encounters a tab character (ASCII code 9), it first adds a string of eight blanks to the current word and then processes the word as if the input character were a blank. If the program encounters a carriage return (CR\$), it knows that it has reached the end of a paragraph. As it does with the space character delimiter, the program first checks to see if the current line and the new word will fit on one line. If so, the program adds the new word to the current line and then calls a routine to print the line.

If the current line and the new word won't fit on one line, the program calls a subroutine to print the current line, then sets the current line equal to the tab spaces plus the new word and again calls the print line subroutine.

Finally, in either case, the program sets the current line and the character count equal to the size of the tab string.

To print out a line, the program simply prints the string in the current line, LN\$, plus the value in the spacing string, SP\$. It then increases the line count, LC, by the appropriate number of increments. If the line count hasn't exceeded the value for the bottom margin, BM, the subroutine returns to the main program.

If the line count has exceeded what the bottom margin allows, the program prints enough blank lines to reach the page count line (two lines up from the bottom). If a page count was requested, the current page number is printed in the center of this line. The program then prints out one more blank line to reach the end of the page. If there is more data to print, the program prompts you to press any key to continue. If you are printing onto single sheets of

paper, you now have time to insert a new page into the printer. After you press any key, the program prints out enough blank lines to reach the top margin of the new page. It then returns to the main program.

When you first open the input file, the program will branch to the error-handling section if BASIC can't find the file. In such a case, the program gives you the option of getting a listing of the current files in RAM, returning to the original TXTFMT prompt, or else returning to the Model 100 Main Menu. The variables TXTFMT.BA uses are listed in Table 6-1.

USING THE TXTFMT PROGRAM

TXTFMT allows you to print out any file that has the extension .DO, as well as any cassette data file, or even a file transmitted into your Model 100 via the modem or the RS-232C port—in short, any ASCII data file. Generally, however, the files you print out

Table 6-1. TXTFMT.BA Variables

Variable	Definition
AN\$	Response to certain prompts
BM	Bottom margin line
C\$	Character input from text file
CC	Character count of characters in LN\$
CR\$	ASCII code for carriage return
CT	Center of the page (for page number)
FN\$	File name of input file
LC	Line count
LM	Left margin column
LN\$	The current line being built
PC	Page count
PL	Page length (total number of lines on page)
RM	Right margin column
SP\$	Spacing (= 0 CR\$ for single space; = 1 CR\$ for double space)
TB\$	String of blanks required to get to left margin from print column 0
TM	Top margin line
TS	Number of blank characters in TB\$
WD\$	The current word being built
WS	The number of characters in WD\$

with TXTFMT will be those you typed in using the Model 100 TEXT word processing program.

Note that standard $8\frac{1}{2}'' \times 11''$ paper is 66 lines in length (6 lines per inch) and 80 columns wide. (See Figure 6-2.) Therefore, all prompts in TXTFMT will be in this range. We describe how to modify the program for paper that is wider or longer later in the chapter.

Once you have typed the program into your Model 100's memory (and made a "safe" copy on cassette tape), position the Main Menu cursor on the word TXTFMT.BA and press ENTER. The screen will clear, and the program will prompt you with

Name of text file?

Type in the name of the .DO file you want printed—for example **REPORT**—and press ENTER. The program then asks you

Top margin (1-66)?

Type the number of the line where you want printing to start. This value can be from 1 to 66. On every new page the program will skip to this line number before printing. (Remember that you should position the paper so that the top line of the next page is

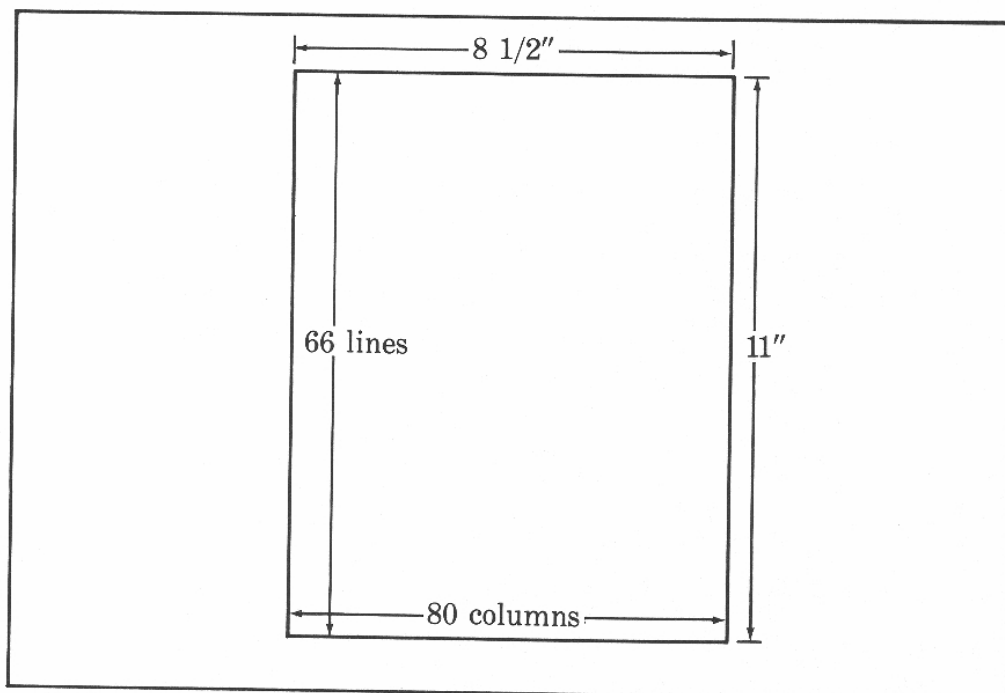


Figure 6-2. Lines and columns on $8\frac{1}{2}'' \times 11''$ paper

just below the print head position.) The program then prompts you

Bottom margin (2-66)?

Enter the number of the last line that you want printed on the page. This value, which can be from 2 to 66, does not include the line used for printing the page number. The program asks

Left margin (1-80)?

Type in the number of the column where you want printing to begin. This value can be from 1 to 80. The program then prompts you

Right margin (2-80)?

Enter the number of the last column in which you want to print. This value can be between 2 and 80. Next the program prompts you

Single space or double space (S/D)?

Type **S** and press ENTER for single spacing between lines, or type **D** and press ENTER for double spacing. Finally, the program prompts you

Insert page numbers (Y/N)

Type **Y** and press ENTER if you want page numbers printed at the bottom of the page. Type **N** and press ENTER if you don't. Note that you cannot specify a bottom margin of greater than 63 and still request page numbers.

After you respond to the page number prompt, the program begins transferring the specified TEXT file to the printer. After the program has printed one page, the screen displays the prompt

Press any key when ready for next page

If you are printing on single sheets of paper, you'll need to insert a new sheet. When you have done so, or if you are using "fanfold" paper, press any key and printing will continue.

When the entire file has been printed, the program will return to the Model 100 Main Menu. The entire sequence might look like Figure 6-3.

Notes on TXTFMT Prompts

The TXTFMT program is particular about the printing "parameters" (margins and the like) that it will accept. The prompts make some constraints explicit—"Left margin (1-80)," for

```

Name of text file? REPORT
Top margin (1-66)? 5
Bottom margin (2-66)? 60
Left margin (1-80)? 10
Right margin (2-80)? 70
Single space or double space (S/D)? s
Insert page numbers (Y/N) y

Press any key when ready for next page

```

Figure 6-3. Sequence for printing a file

example. But you need to be aware of a few other constraints.

- You cannot enter a right-margin number less than or equal to the value you entered for the left margin.
- You cannot enter a bottom-margin number less than or equal to what you entered for the top margin. If you try, the program will continue to prompt until you enter a valid number.
- If you want to print page numbers, you must enter a value *less* than 63 for the bottom margin. If it is greater than 63, the program will accept only N or n in response to the page number prompt.
- If you specify a file name that either doesn't exist or is invalid as a data file (if it has a .BA extension, for example), the program will display the message

```

filename does not exist
Press <M> to return to the menu,
Press <F> to see a list of RAM files,
Press any other key to try again.

```

If you press M, the program will return to the Model 100 Main Menu. If you press F, the program will display a list of the RAM files and then ask you to press any key to continue. If you press any other key, the program will return to its original prompt.

OTHER IDEAS AND ACTIVITIES

You can customize the TXTFMT program in a variety of ways to suit your particular needs. However, before making any changes in the program, be sure you have a master copy on cassette tape so that you don't have to retype the entire program in its original form.

Changing Number of Lines per Page

TXTFMT is written for standard, 8 1/2" × 11" paper, which has room for 66 lines of text (6 lines per inch) from the top to the bottom edge. However, legal-size paper (8 1/2" × 14") or oversize order forms may have room for up to 90 lines. You can easily change the program to suit the size of paper you're using.

First change the value of PL in program line 60 so that it represents the number of lines on the length of paper you're using. (Remember that there are 6 lines per inch.) The form feeding and page number are both based on the value of PL, so they will function properly without alteration. Then change the prompts in program lines 70 and 80 to the maximum value.

Using a Device Other Than a Parallel Printer

As it is listed in this chapter, the TXTFMT program will cause your Model 100 to print out a text file on a parallel printer via the computer's parallel printer channel. However, you can customize the program to perform such operations as printing out on a serial printer or to a cassette recorder.

Printing on a Serial Printer You can change the program so that it prints out on a serial printer as well as a parallel printer. To print out on a serial printer, connect the printer to the Model 100's RS-232C connector (you'll need a special cable). Then change program line 170 (170 OPEN "LPT:" FOR OUTPUT AS 2) to

```
170 OPEN "COM: rwpbs" FOR OUTPUT AS 2
```

where *rwpbs* is the communications protocol (baud rate, word length, and so on) used by your serial printer. For example,

```
170 OPEN "COM:38E1E" FOR OUTPUT AS 2
```

would set up the communications protocol for 300 baud, a word length of 8, even parity, 1 stop bit, and XON/XOFF enable.

Saving and Printing a Formatted File on Tape At times, you may want to store a formatted TEXT file for printing at a later date. Of course, you could save it as a normal TEXT file, but if you wanted to format it with the TXTFMT program, you'd have to load and execute the program. By making the following changes, you can save the formatted version of the TEXT file on cassette tape and then print it out directly from the cassette recorder.

To save the formatted TEXT file on cassette tape, change line 170 to

```
170 OPEN "CAS:filename" FOR OUTPUT AS 2
```

where *filename* is the name you want to save the TEXT file under. For instance,

```
170 OPEN "CAS:REPORT" FOR OUTPUT AS 2
```

To print the formatted TEXT file directly from cassette tape, you must enter BASIC and type in and run the following short program

```
10 OPEN "LPT:" FOR OUTPUT AS 1
20 OPEN "CAS:filename" FOR INPUT AS 2
30 IF EOF(2) THEN END
40 LINE INPUT#2,A$
50 PRINT#1,A$
60 GOTO 30
```

where *filename* is the name under which you saved the formatted TEXT file in program line 170 (in our example, REPORT).

When you're ready to print out the file stored on tape, just type

RUN and press ENTER

when the BASIC OK prompt is displayed.

Do not attempt to reformat a previously formatted TEXT file. You can print a formatted TEXT file that was saved on cassette tape by loading it into the Model 100 and pressing SHIFT and PRINT. The TEXT file will then be printed in the formatted version.

Printing and Formatting an Unformatted File From Tape If you have an unformatted TEXT file stored on cassette tape, you can format and print it directly on a printer without first loading it into the Model 100. And to do this, you don't have to change the program at all.

Run the program as described in the first part of this chapter. When the program asks you

Input filename?

type in the device name followed by the name you stored it on in the following format:

Input filename? *device name: file name*

For example,

Input filename? CAS:REPORT

would print out a file saved as REPORT on cassette tape.

Using the Model 100 as a Print Spooler Many computers, when connected to a printer while printing is in progress, can't do anything except sit there and mind the printer. This can make for very inefficient use of a valuable computer. Consequently, devices called "print spoolers" are available that store information while the printer is printing so that you can use the computer for other purposes.

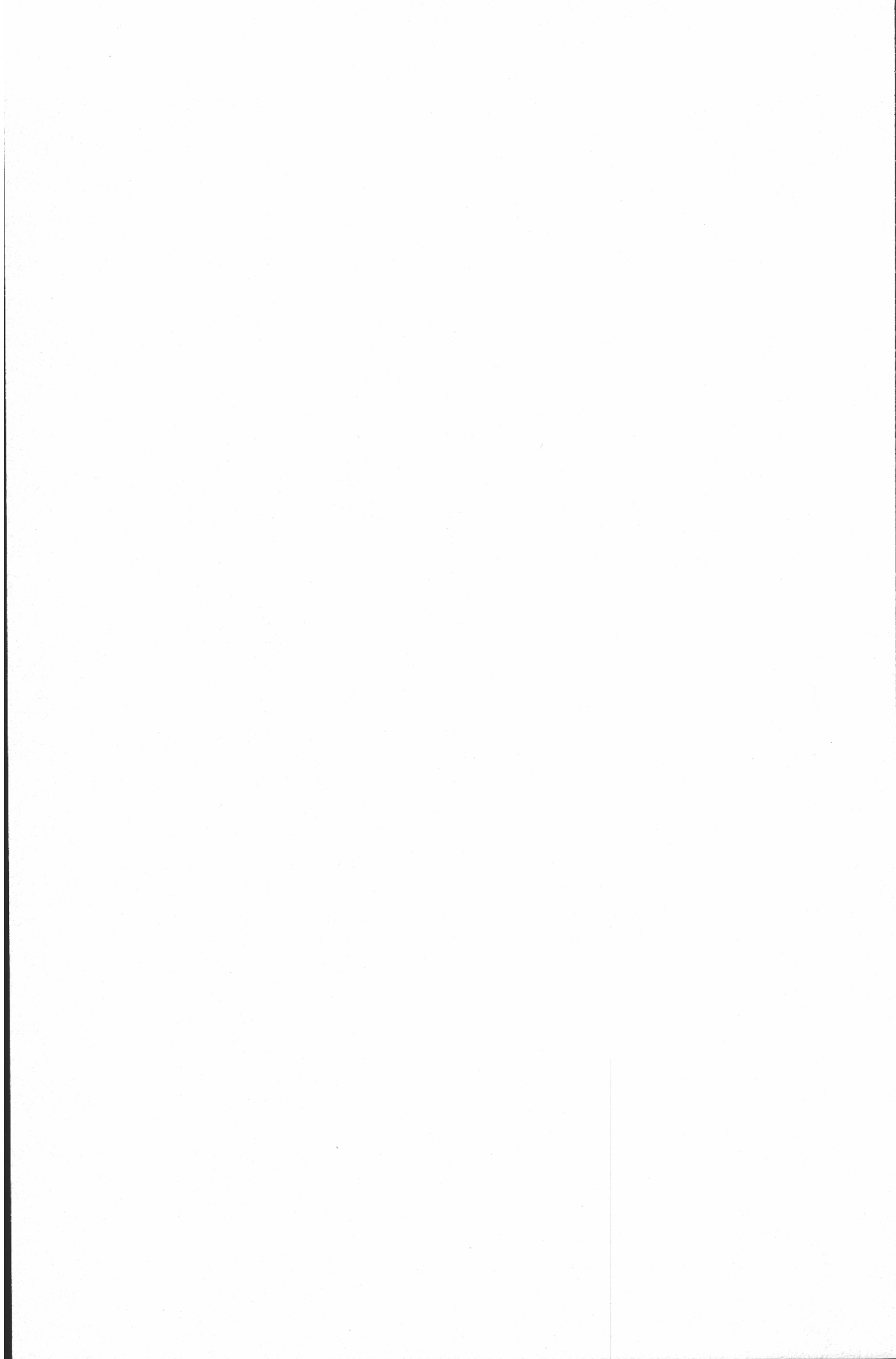
If you have another office computer and your Model 100 is free for use, you can connect the two computers via their RS-232C connectors. Then "print out" through the other computer's RS-232C port, sending the data to the Model 100 and storing it there just as if the Model 100 were a printer. To do this, you'll need to type this short BASIC program into the Model 100 and run it:

```
10 OPEN "SPOOLR" FOR OUTPUT AS 1
20 OPEN "COM:68E1E" FOR INPUT AS 2
30 IF EOF(2) THEN 70
40 LINE INPUT#2,A$
50 PRINT #2,A$
60 GOTO 30
70 CLOSE
80 OPEN "SPOOLR" FOR INPUT AS 1
90 OPEN "LPT:" FOR OUTPUT AS 2
100 IF EOF(1) THEN KILL "SPOOLR.DO": MENU
110 LINE INPUT#1,A$
120 PRINT #2,A$
130 GOTO 100
```

Once the other computer has completed the transfer, it can do something else while the Model 100 takes care of printing the information.

Note that the other computer must end the transmission with the EOF character ASCII 1AH (CTRL Z). Also note that if the file is particularly long, you may need to store the SPOOLR.DO file on cassette and then rewind the tape before printing. If you do this, add or change the following lines

```
10 OPEN "CAS:SPOOLR" FOR OUTPUT AS 1
75 PRINT "Rewind the cassette tape;"
76 INPUT "Press <ENTER> to continue";AN$
80 OPEN "CAS:SPOOLR" FOR INPUT AS 1
100 IF EOF(1) THEN MENU
```



7 Getting Stock Quotes

A big part of any executive's job is keeping track of the latest business news and current stock quotes. Executives need information about how firms, industries, and the economy are doing if they are to make decisions affecting their company. Sue Campbell is no exception. It's her job to make decisions—the right decisions. To do her job well, she needs to have the most current, accurate, and complete information possible. (Sometimes yesterday's quotes aren't good enough, even though they're listed in today's *Wall Street Journal*.)

When connected to a telephone, a Model 100 can provide the most recent information about stocks and the companies that issue those stocks. All that is needed is the telephone number of the Dow Jones News/Retrieval information service and a password. The Dow Jones service provides current market quotes on all stocks,

bonds, and options traded on the major stock exchanges. Also available are quotes on selected U.S. Treasury issues and business news from the *Wall Street Journal*, *Barron's*, and the Dow Jones News Service. There is also information (some of it historical) on more than 3000 companies. Furthermore, there is an electronic encyclopedia.

CONNECTING THE HARDWARE

To use the Model 100 to find out about stock quotes and business news from Dow Jones, you'll need one of the following hardware configurations:

- A Model 100 Modem Cable and a direct-connect telephone
- A Model 100 Acoustic Cup set and a telephone (such as a pay phone).

If you're using the Model 100 Modem Cable (such as in an office or hotel room), set up the system as shown in Figure 7-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG (both switches are on the left side of the computer). If you're using the Model 100 Acoustic Cups, set up the system as shown in Figure 7-2. Set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

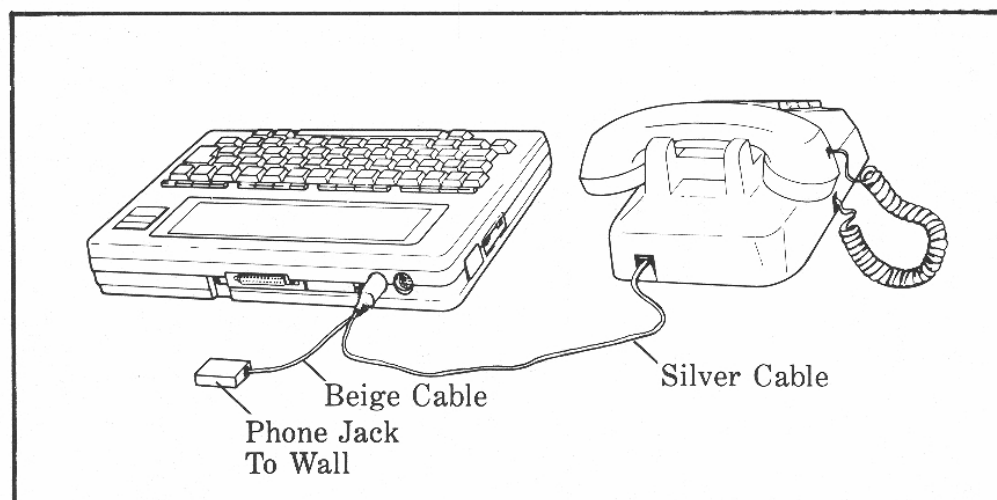


Figure 7-1. The Model 100 Modem Cable connections

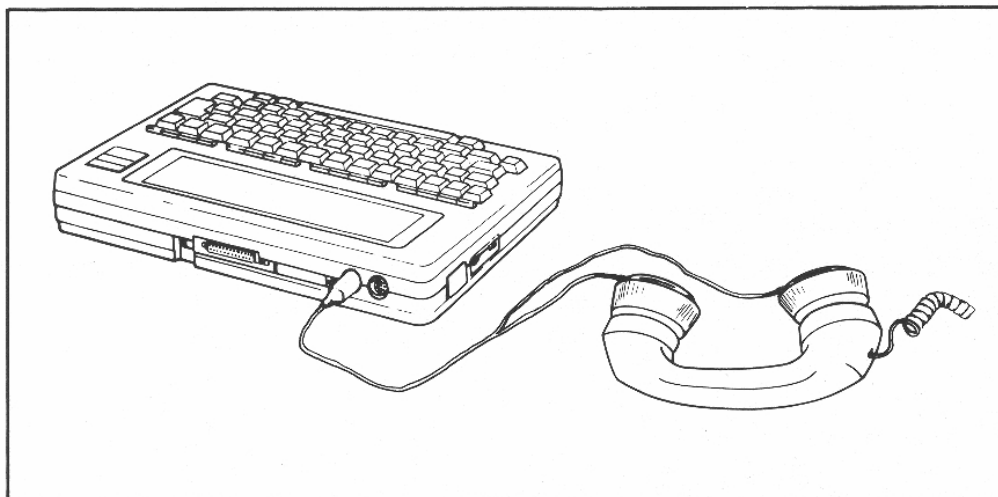


Figure 7-2. The Model 100 Acoustic Cups

SETTING UP THE SOFTWARE

The next step is to set up the Model 100's communications software so that it is the same as the information service's; that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length. To do so, perform the following:

1. Move the Main Menu cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem, when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, move the Main Menu cursor to TELCOM and press ENTER. Next press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

LOGGING ON TO DOW JONES

Depending on your geographical location, you may have to log on to Dow Jones via the Tymnet or Telenet network services. For your local network telephone number, see the directory provided by Dow Jones when you subscribe to the service.

When the TELCOM: prompt appears, press F2; CALL will be displayed. Type the local Dow Jones telephone number and the greater-than and less-than signs. For example, type

5554321<>

and press ENTER. Each digit will be displayed as it is dialed. When dialing is complete, you'll hear a beep. At this point, check to be sure that you're in FULL duplex. If the screen displays HALF over F4, press F4 and FULL will be displayed. You'll then be communicating with Telenet. However, you won't yet be on-line with Dow Jones.

The first prompt that will appear on the Model 100's display will look something like this:

PLEASE TYPE YOUR TERMINAL IDENTIFIER
—3775—022—

Simply type A—do not press ENTER. You will be prompted

PLEASE LOG IN:

Type

DOW1;;

Do not press ENTER. (Notice that the second semicolon is not displayed.) Next the following message will appear:

HOST IS ONLINE

You've established communication. When prompted

WHAT SERVICE PLEASE????

you should type

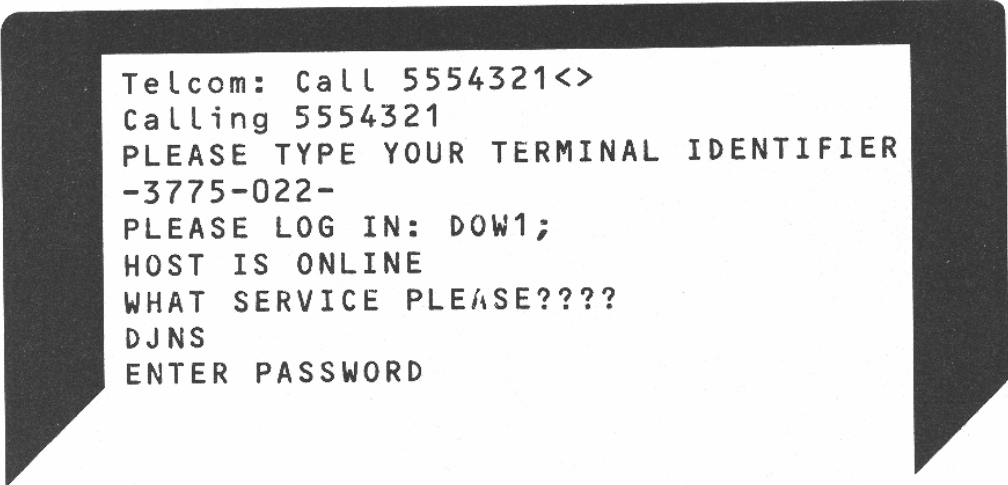
DJNS ENTER

Telenet will transfer you to Dow Jones, and you'll be prompted

ENTER PASSWORD

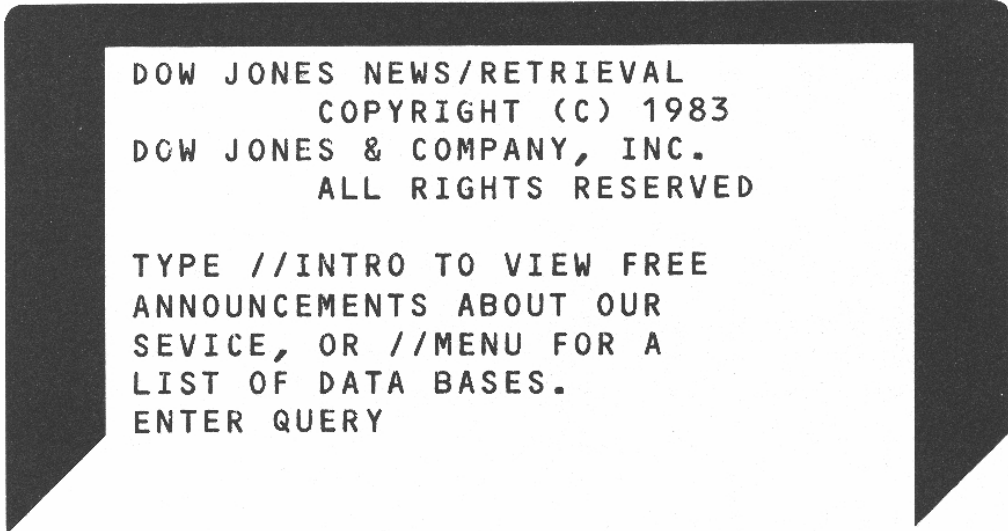
Type in the password you were assigned when you subscribed to Dow Jones (for instance, **SECRETSTAR**) and press ENTER. Notice that the password is not displayed on the Model 100 screen as you type.

The entire procedure should look something like Figure 7-3.



```
Telcom: Call 5554321<>
Calling 5554321
PLEASE TYPE YOUR TERMINAL IDENTIFIER
-3775-022-
PLEASE LOG IN: DOW1;
HOST IS ONLINE
WHAT SERVICE PLEASE????
DJNS
ENTER PASSWORD
```

Figure 7-3. Logging On to Dow Jones



```
DOW JONES NEWS/RETRIEVAL
      COPYRIGHT (C) 1983
DOW JONES & COMPANY, INC.
      ALL RIGHTS RESERVED

TYPE //INTRO TO VIEW FREE
ANNOUNCEMENTS ABOUT OUR
SERVICE, OR //MENU FOR A
LIST OF DATA BASES.
ENTER QUERY
```

Figure 7-4. The initial Dow Jones screen display

USING DOW JONES

Once you've logged on to Dow Jones, you'll be presented with a screen that looks like the one in Figure 7-4. If you want to get down to business, type

MENU ENTER

The Dow Jones master menu will then appear, allowing you to look up stock quotes or any of the information Dow Jones provides. See Figure 7-5.

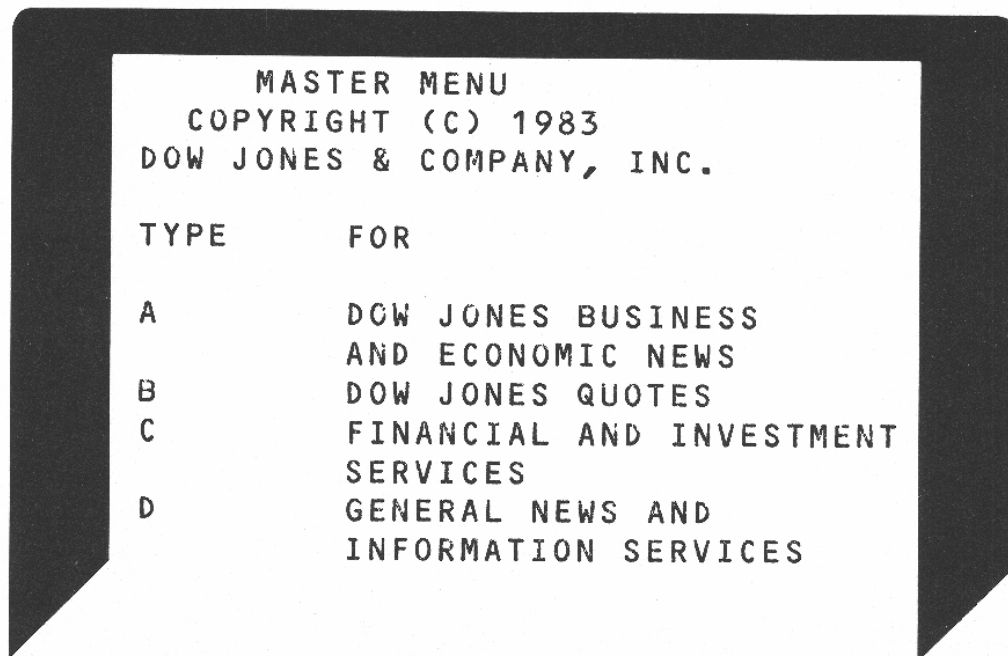


Figure 7-5. The Dow Jones master menu

No matter where you are in the service, you can always type **MENU** and press **ENTER** to return to the master menu.

Getting Stock Quotes and Company News

For stock information, select option B by typing **B** and pressing **ENTER**. Dow Jones will prompt you with a menu similar to that in Figure 7-6. To check on current stock quotes, type

CQ ENTER

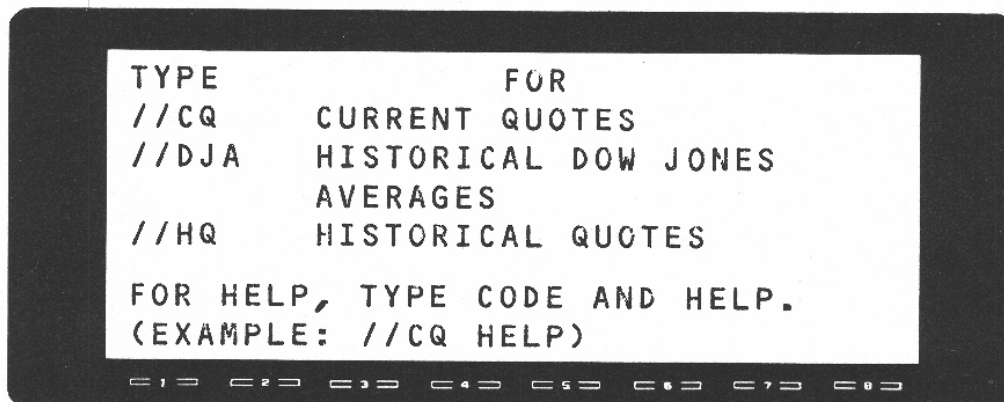


Figure 7-6. A Dow Jones stock information menu

Dow Jones will respond with the message

**CURRENT DAY QUOTES BEING ACCESSED
ENTER QUERY**

To get the current quote on a particular stock, type a comma (,) and the company symbol and press ENTER. (For a complete list of company symbols that Dow Jones recognizes, see your copy of *Dow Jones News/Retrieval Operating Guide and Directory of Symbols*.) For example, since Sue Campbell's business is graphic arts and printing supplies, the price of paper and the financial condition of various paper supply companies is very important to her (not to mention that she owns stock in those companies and needs to know whether to buy or sell).

Since Sue owns stock in Superior Papers (a fictitious company), she might type

,SUP ENTER

Dow Jones will respond with a message similar to that in Figure 7-7.

If Sue wants additional news (not just stock quotes) on how Superior Paper has been doing, she can type

.SUP ENTER

and Dow Jones will tell her if there have been any news stories about the company in the last 30 days.

At this time, Sue can request more data on Superior Paper or a

CURRENT DAY QUOTES BEING ACCESSED ENTER QUERY						
DOW JONES STOCK QUOTES STOCK QUOTES DELAYED OVER 15 MINUTES *=CLOSE PRICE ADJUSTED FOR EX-DIVIDEND						
STOCK		BID	ASKED			
SUP	CLOSE	OPEN	HIGH	LOW	LAST	VOL(100'S)
	31 3/4	31 1/2	33 1/4	31	33 1/8	1591

Figure 7-7. Dow Jones stock information on a company

quote on a different company, or she can return to the master menu by typing

MENU ENTER

Getting Business and Industry News

Dow Jones isn't limited to information on particular companies; you can get general news about an industry as well. To do so, return to the master menu (by typing **MENU** and pressing **ENTER**). From the master menu, select option A by typing **A** and pressing **ENTER**. A menu similar to that in Figure 7-8 will appear.

If you want the Dow Jones News, type

DJNEWS ENTER

and Dow Jones will display the message:

**DOW JONES NEWS IS BEING ACCESSED
ENTER QUERY**

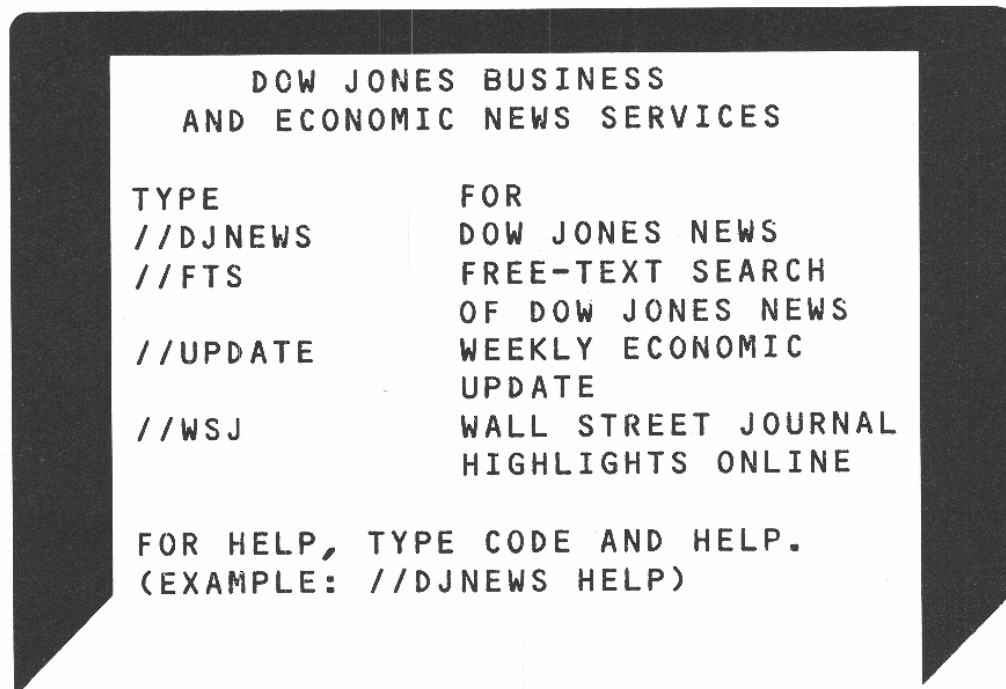


Figure 7-8. Dow Jones Business and Economic News menu

You can then type in an industry code to get the latest news headlines. (See the *Dow Jones News/Retrieval Operating Guide and Directory of Symbols* for a list of the codes.)

Sue was interested in the news about the paper industry—code I/PUL. Following the instructions in the Dow Jones User's Guide, she typed

.I/PUL 01 ENTER

Dow Jones responded with headlines such as

DM 06/24 U.S. WANTS CANADA TO END LUMBER
(DW) SUBSIDIES

DN 06/22 SUPERIOR ANNOUNCES PRICE HIKE
(WJ) ON NEWSPRINT

Since Sue had to know about anything that had to do with Superior (especially a price hike), she typed DN (the index code in the left column) and pressed ENTER. The story that accompanied the headline began scrolling by on her Model 100 screen.

LOGGING OFF DOW JONES

When Sue had the information from Dow Jones that she needed, she logged off the service by typing

DISC ENTER

Then she pressed F8 and the TELCOM message

Disconnect?

appeared on the display. She typed Y in response, and the TELCOM: prompt reappeared.

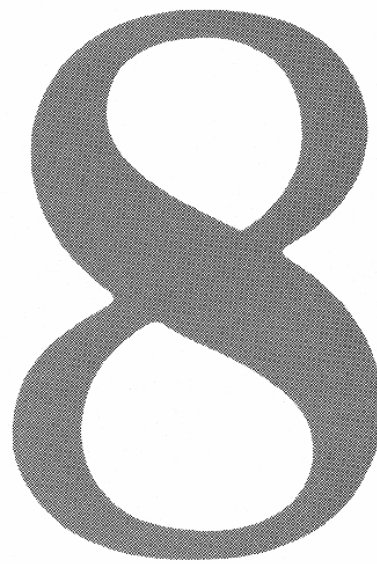
OTHER ACTIVITIES

CompuServe and The Source also offer financial information. CompuServe, for instance, offers Standard and Poor's data, MicroQuote, and Quick Quote, among other financial databases. Check your information service user's guide for details. You might also take a look at *The Model 100 Companion* (Osborne/McGraw Hill, 1984). In that book, you'll find a program that automatically

logs on to CompuServe and requests whatever stock quotes you need. Those quotes are then stored in a TEXT file for later viewing.

Also be sure to look at the sample programs in Appendix C of your *Model 100 Owner's Manual*. One program enables the Model 100 to automatically dial Dow Jones and request whatever stock quotes you want.

Furthermore, there are many software packages available that can help you make important financial decisions. Radio Shack, for example, offers a Model 100 Investment Analysis program on cassette tape that helps predict trends in the financial world.



Desktop Manager

One day Sue Campbell took stock of her desktop. Among assorted papers and files, she had

- A telephone that she couldn't get along without.
- A calculator that she also needed.
- An "instant find" phone directory.
- An address book.
- A memo pad that she could never find when she needed it.
- An appointment calendar.
- A personal computer that she was depending on more and more.
- A modem that tied her computer to the telephone.

- A clock.
- A calendar.

It occurred to her that what she needed was one desktop device that did the jobs this equipment did. And that device was the Model 100. (Although the Model 100 can't replace the telephone, it can work with a phone to get more work done more efficiently.)

In this chapter we'll show you how one business executive made the Model 100 the center of her office world.

CONNECTING THE HARDWARE

To perform a few of the operations described in this chapter, your Model 100 will need to be connected to a telephone either by the Model 100 Modem Cable or the Model 100 Acoustic Cups. The following sections describe how to complete these connections.

Other procedures may require a printer, so we'll also describe how to connect one to the Model 100.

Finally, although all procedures can be performed on a Model 100 with 8K of RAM, we recommend that you have at least 16K of RAM so the size of some TEXT data files used by BASIC programs is not constricted.

Connecting a Model 100 to a Telephone

If you're connecting the Model 100 directly to a telephone (such as in an office or hotel room), use the Model 100 Modem Cable and set up the system as shown in Figure 8-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG unless a particular procedure requires that the ANS/ORIG switch be set to ANS. (Both switches are on the left side of the computer.)

If you're connecting the Model 100 to the Model 100 Acoustic Cups, set up the system as shown in Figure 8-2. Set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

Connecting a Model 100 to a Printer

Before connecting a Model 100 and a printer, be sure the power to both units is *off*.

Connect the large end of the Model 100 Parallel Printer Cable to the printer; connect the small end to the Model 100's parallel

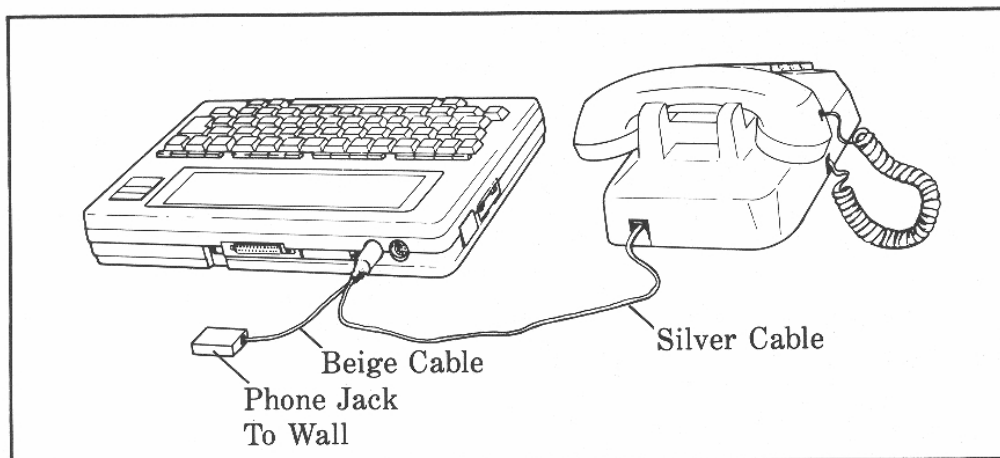


Figure 8-1. *Connecting the Model 100 to a telephone using the Modem Cable*

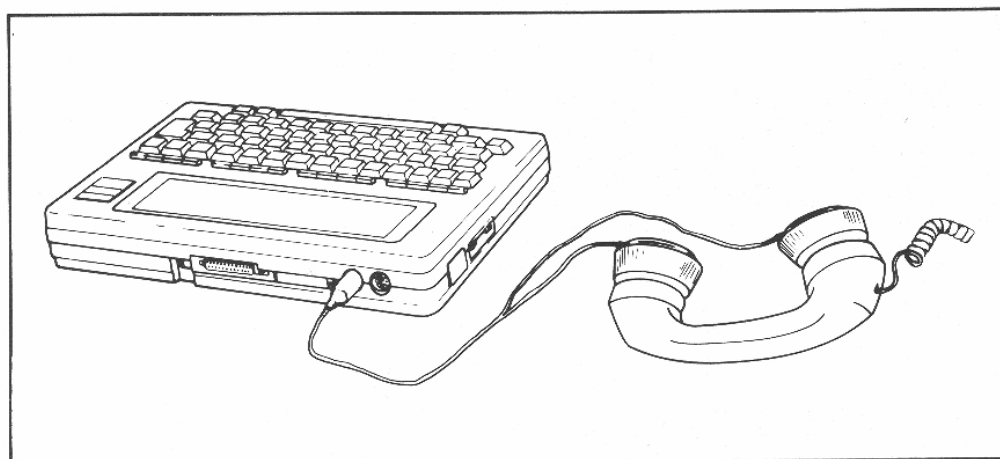


Figure 8-2. *Connecting the Model 100 to a telephone using the Acoustic Cups*

printer connector. Make sure that the cable connected to the computer goes “down” when it exits the Model 100.

Turn the power on to the printer before turning on the Model 100.

TELEPHONE DIRECTORY AND ADDRESS BOOK

We’ll start by describing how to create a simple telephone directory and address book. While the Model 100 doesn’t require it, we recommend you use the `ADRS.DO` file (created when you select the `ADDRSS` program) to create your telephone directory. In fact, you must do so if you want to use the `ADRS.DO` automatic dialing

feature. However, if you simply want a listing of names and addresses, you can create any TEXT file to store the information. You could then write a BASIC program to access the file (a mailing list, for instance), but you wouldn't be able to use the built-in TELCOM program for auto-dialing.

If you haven't used ADRS.DO before, follow this procedure:

1. After powering up the computer, move the cursor to the word TEXT by pressing the space bar, and then press ENTER.
2. When asked
File to edit?
type
ADRS and press ENTER.
3. You can now type in the telephone numbers and corresponding names.

The format you use to create your directory is entirely up to you. You can create a list that has the last name first, address first, street number first—or even the ZIP code first if you want. Whatever format you choose, however, be sure that you

- Keep the format consistent: don't put the phone number first in one entry and the name first in another.
- Put a colon before and after the phone number.
- If you intend to use your phone directory for automatic dialing, type in a greater-than and a less-than sign between the number and the final colon. Anything past the final colon will be ignored. Put addresses after that final colon.

Try a format such as this:

Gerry Hughes :314-555-9898<>:345 W. 56th St. Hughesville
OH 87110

Carol Caldwell :714-555-3214<>:RR# 1 Pleasanton CA 99182

In both examples we started with the names and followed them with the phone numbers (the dashes are optional; you can use spaces or run the numbers together), the greater-than and less-than signs (for auto-dialing), and finally the address. Be sure to press ENTER at the end of each entry in the ADRS.DO file.

When you want to find a particular address or phone number (to dial manually), perform the following steps:

1. Move the Model 100 Main Menu cursor to the word `ADRS.DO` and press `ENTER`.
2. Then press `F1` for `FIND`.
3. When the Model 100 prompts you with

String:

type all or part of the name, phone number, or address you want to find. When you press `ENTER`, the cursor will move to the first occurrence of what you specified and display it.

(The `FIND` function will search through a `TEXT` file only below the current cursor position; it will not examine items in the file above the cursor.)

If you want to alphabetize the listings, use the "Sorting" program in the appendix of your Model 100 owner's manual. This will be useful if you print out your address file. You can also add to your list at any time without having to insert names in the middle of the directory; instead, you re-sort the list to keep it in order.

DIALING A PHONE NUMBER AUTOMATICALLY

Before trying to automatically dial a telephone number that's stored in the `ADRS.DO` file, be sure you've entered the colons and the greater-than and less-than signs.

- The first colon tells the Model 100 to start dialing, and the second colon terminates dialing.
- Unless the greater-than and less-than signs are included, the number will be dialed but the phone at the other end will not ring.

As the phone number is dialed, the individual digits will appear on the display; pick up the telephone receiver before the last number appears on the screen.

If you're auto-dialing from an office system that requires you to dial 9 to get an outside line, include that number in the auto-dialing sequence also.

Remember that auto-dialing can be done only via the Model 100

Modem Cable. The Model 100 Acoustic Cups or other external modems cannot be used.

All numbers dialed automatically must be dialed through the TELCOM program (unless you're using a program custom designed to do otherwise). To dial a number automatically, follow these steps:

1. Be sure the Model 100 is properly connected to a telephone.
2. Load the TELCOM program by moving the Main Menu cursor to the word TELCOM and pressing ENTER.
3. Press F1 to FIND the number you want dialed. When prompted, type in the name or number.
4. When the name or number appears on the display, press F2 to CALL the number.
5. As each digit of the number is dialed, it appears on the display. Pick up the phone receiver any time before the last number is dialed.

You may then use the telephone in a normal fashion. After you've hung up the phone, press F8 to disconnect the phone line.

ELECTRONIC MEMO PAD

There were times, especially when she was away from the office, that Sue needed to get memos or files from her office. When she was on the other side of the country, she and her secretary used CompuServe's Electronic Mail service (see Chapter 3). But when she was on the other side of town, an information service wasn't that practical or that fast. So Sue and her secretary began transferring information over the telephone from the secretary's Model 100 to Sue's Model 100.

A Few Words on Terminology

When two computers communicate with each other, certain words are used so that people know which computer is which. In computer jargon, one computer is usually referred to as the "host computer" and the other as the "remote computer." Or in this case we could call Sue's Model 100 the "portable" computer and her secretary's the "office" computer. Here, however, we'll use the position of the modem switch (on the left side of the computer) to iden-

tify which computer is which. (See Figure 8-3.) When two Model 100s are communicating over the phone,

- One Model 100 must have the modem switch set to ORIG
- The other Model 100 must have this switch set to ANS.

In this chapter, Sue will “ORIGinate” all phone calls to the office, so she will set her computer’s switch to ORIG. We’ll refer to that Model 100 as the “ORIGinating computer.” Her secretary will be “ANSwering” the phone at the office, so her computer’s switch will be set to ANS and that computer will be the “ANSwering computer.” Once the phone connection is made, either party can upload or download files and memos to the other.

Connecting the Hardware

Connect both Model 100s to the phones as described in the first part of this chapter. Be sure, however, that one Model 100 has the modem switch set to ORIG and the other to ANS.

Setting Up the Software

The next step is to set both computers’ communications software so that they are the same. We suggest 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length. Higher baud rates can be used for faster information transfer. We recommend, however, that you do not go higher than 4800 baud over normal phone lines. If you begin to receive garbled data (missing characters or graphic symbols, wrong information, and similar problems), lower the baud rate and try again.

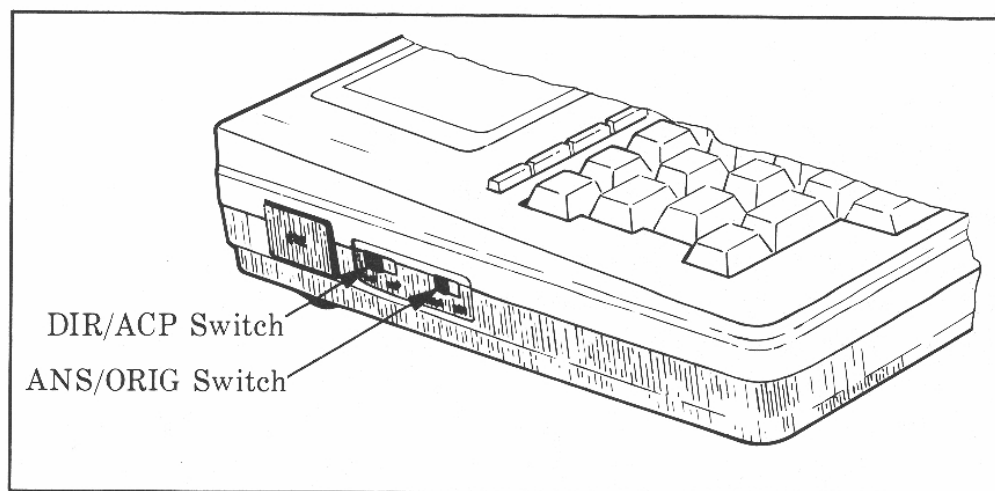


Figure 8-3. Modem switch

To set the Model 100 communication parameters:

1. Move the Main Menu cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem, when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP; then move the Main Menu cursor to TELCOM and press ENTER. Next press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

For this procedure, you'll want to be in half duplex so that you can see what you're typing in addition to what the other person is typing. To set the Model 100 to HALF, once the Model 100 is connected to a phone and you're in TERMinal Mode, press F4. If FULL is displayed, press F4 and HALF will be displayed.

Sending a Memo or File To Another Model 100 by Phone

Once both Model 100s are connected to a telephone and the communication parameters have been set, the ORIGINating Model 100 (Sue's in our example) should dial the phone number of the ANSwering Model 100 (her secretary's number). Both parties should follow the procedure outlined here to upload or download files or memos. (*Remember:* The terms ORIGINate and ANSwer identify which computer places and which answers the call, not which uploads the memo or file to the other computer.)

After a phone connection has been established, both parties can talk to one another until either pushes F4. Once both parties push F4, they can "talk" to one another by typing on the keyboard, as long as HALF is displayed above F4 (if FULL is displayed, press F4 to display HALF).

We suggest that you set certain rules when "talking" on the keyboard. If you don't, the other person may begin typing an answer before you've finished the question or may not realize you've finished typing at all. So try using a series of stars (****) or other symbols (####, %%%%, and the like) to indicate when you're ready for the other person to begin typing.

ORIGinating Model 100

1. Load the TELCOM program (move the Model 100 Main Menu cursor to TELCOM and press ENTER).
2. When the TELCOM: prompt appears, press F2.
3. CALL will appear on the display. Type the phone number of the ANSwering Model 100; for example:
5551111<>ENTER
Each digit will be displayed as it is dialed.
4. Before dialing is complete, pick up the telephone. Be sure the correct party is on the other end (at this point, you still have voice contact).
5. Press F4 to enter TERMinal Mode.
6. Hang up the phone.
7. Press F4 to go into half duplex mode. (HALF will be displayed above F4.) You can now "talk" to the other person by typing on the Model 100 keyboard.
8. Perform the upload or download operation. If

ANSwering Model 100

1. Load the TELCOM program (move the Model 100 Main Menu cursor to TELCOM and press ENTER).
2. Wait.
3. Continue waiting.
4. When you hear the phone ringing, pick it up. Be sure the correct party is on the other end (at this point, you still have voice contact).
5. Press F4 to enter TERMinal Mode.
6. Hang up the phone.
7. Press F4 to go into half duplex mode. (HALF will be displayed above F4.) You can now "talk" to the other person by typing on the Model 100 keyboard.
8. Perform the upload or download operation. If

the ORIG Model 100 is to receive a file from the office, press F2 for DOWNload. You'll be asked

File to Download?

9. Type in the file name you wish to assign to the file you're receiving and press ENTER.
10. Wait.
11. DOWN will go into reverse video, and the file transfer will begin.
12. When the transfer is complete, press F2 and DOWN will return to normal video and the blinking cursor will return. Press F8 to disconnect the phone line.

the ANS Model 100 is to send a file to the ORIG computer, press F3 for UPload. You'll be asked

File to Upload?

9. Type in the file name you wish to send and press ENTER.
10. You'll be asked:
Width?
Press ENTER.
11. UP will go into reverse video, and the file transfer will begin.
12. When the transfer is complete, press F3 and UP will return to normal video and the blinking cursor will return. Press F8 to disconnect the phone line.

(If the ANSWERING Model 100 were receiving the file instead of sending it, steps 6 through 10 would be reversed; that is, it would perform the operations described in the left column and the ORIGINATING Model 100 would perform those in the right.)

When the file transfer is complete, the person receiving the file can press F8 to return to the Model 100 Main Menu, where the received file is listed with the extension .DO.

Sending a Memo or File To Another Computer Directly

If two Model 100s are connected directly to each other via the RS-232C connectors, the procedures are the same with two excep-

tions: (1) no telephone dialing is required; (2) a null modem adapter is needed in addition to a RS-232 cable.

For communication with other computers, a null modem may or may not be needed. Check the specification section of your computer operation manual for details on which "pin" sends data and which "pin" receives it (typically, pins 2 and 3).

APPOINTMENT CALENDAR

One thing Sue Campbell wanted her computer to do was to give her a better way of scheduling appointments. The following program does just that by allowing appointments to be scheduled and displayed on the screen or printed out on a printer.

Because the program is long, we've divided it, for your convenience, into sections called modules. Each module performs a necessary function for the program to run. However, if you don't have a printer or won't require printed schedules, you can save yourself some typing and the computer some memory by leaving out Module 3-A.

Since this is a BASIC program, be sure the Model 100 Main Menu cursor is on the word BASIC and then press ENTER. Certain copyright information and the BASIC OK prompt will be displayed. Following the prompt will be a blinking cursor. You should begin typing in the program exactly as it is listed. Don't forget to begin each program line with a line number (10, 20, 30, and so on) and end each line by pressing ENTER.

Once you have typed in the entire program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "APP" ENTER

We also suggest that you save the program onto cassette tape at that time. Connect a cassette recorder to the Model 100 (see your owner's manuals for details on volume control) and simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the APP program is loaded into memory, then type

CSAVE "APP" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as APP.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line with the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, go ahead and save what you do type. Later, load those portions that you previously typed in, and then type in the rest of the program. Finally, save it again under the same name.

```

10 ' *** Appointment Calendar -- Copyright 1983 Sayre &
    Erickson ***
20 'Module 1 -- Main Driver
30 CLEAR 500
40 MAXFILES=2: DEFINT A-Z
50 RV$=CHR$(27) + "p": NV$=CHR$(27) + "q"
60 KEY1,"N": KEY2,"S": KEY3,"": KEY4,"": KEY5,"":
    KEY6,"": KEY7,"": KEY8,"M"
70 CLS: PRINT NV$;
80 PRINT@ 8, "Welcome to Desktop Manager"
90 PRINT@ 280, "Next Select";
100 PRINT@ 315, "Menu";
110 OP$(0)= " Enter Appointment": PP(0)=90
120 OP$(1)= " Print Appointment": PP(1)=130
130 R=0
140 FOR I=0 TO 1: PRINT@ PP(I),NV$,OP$(I);: NEXT I
150 PRINT@ PP(R),RV$,OP$(R);NV$;
160 A$=INKEY$: IF A$="" THEN 160
170 IF A$="N" THEN R=(R+1)MOD2: GOTO 140
180 IF A$="M" THEN CALL 23164,0,23366: CALL 27795: MENU
190 IF A$ <> "S" THEN BEEP: GOTO 140
200 ON R+1 GOSUB 220,630,
210 GOTO 60
220 'Module 2 -- Appointment entry
230 ON ERROR GOTO 590
240 CLS: PRINT NV$;
250 PRINT@ 0, "Appointment Date: _/_/_";
260 PRINT@ 40, "Appointment Time: _:_:";
270 PRINT@ 80, "Where? " + STRING$(30," ");
280 PRINT@ 120, "Remarks " + STRING$(30," _");
290 PRINT@ 280, "Rcrd Cncl";
300 BF$=STRING$(70," ")

```

```

310 CC(0)=1: PP(0)=20
320 CC(1)=1: PP(1)=23
330 CC(2)=1: PP(2)=26
340 CC(3)=1: PP(3)=58
350 CC(4)=1: PP(4)=61
360 CC(5)=29: PP(5)=90
370 CC(6)=29: PP(6)=130
380 MW=6: MB=69: WD=0: BP=0: CH=0
390 GOSUB 1620
400 IF C$=CHR$(2) GOTO 560
410 OPEN "APPSCH" FOR INPUT AS 1
420 OPEN "TMPSCH" FOR OUTPUT AS 2
430 S1$=MID$(BF$,5,2) + MID$(BF$,1,4) + MID$(BF$,7,4)
440 IF EOF(1) THEN PRINT#2,BF$;: GOTO 520
450 IP$=INPUT$(70,1)
460 S2$=MID$(IP$,5,2) + MID$(IP$,1,4) + MID$(IP$,7,4)
470 IF S1$ < S2$ THEN PRINT#2,BF$;: PRINT #2,IP$;ELSE
    PRINT#2,IP$;: GOTO 440
480 IF EOF(1) GOTO 520
490 IP$=INPUT$(70,1)
500 PRINT#2,IP$;
510 GOTO 480
520 CLOSE 1,2
530 KILL "APPSCH.DO"
540 NAME "TMPSCH.DO" AS "APPSCH.DO"
550 GOTO 580
560 PRINT@ 292,NV$; "Operation cancelled!";
570 FOR I=1 TO 500 : NEXT I
580 RETURN
590 IF ERR <> 52 THEN PRINT@ 240, "Error #";ERR;" in
    line #";ERL;: STOP
600 OPEN "APPSCH.DO" FOR OUTPUT AS 1
610 CLOSE
620 RESUME
630 'Module 3 -- Print appointment
640 ON ERROR GOTO 590
650 CC(0)=1: PP(0)=20
660 CC(1)=1: PP(1)=23
670 CC(2)=1: PP(2)=26
680 CC(3)=1: PP(3)=58
690 CC(4)=1: PP(4)=61
700 CC(5)=1: PP(5)=64
710 CC(6)=20: PP(6)=99
720 CC(7)=0: PP(7)=154
730 CLS: PRINT NV$;
740 PRINT@ 0, "Starting with date: _/_/_";
750 PRINT@ 40, "Ending with date: _/_/_";

```



```

760 PRINT@ 80, "Specific topic(s): " + STRING$(21," ");
770 PRINT@ 120, "Print to Screen or Printer (S/P): _";
780 PRINT@ 280, "Print Cncl";
790 KEY1,"N": KEY2,"C": KEY8,""
800 BF$=STRING$(34," ")
810 BP=0: CH=0: WD=0: MB=33: MW=7
820 GOSUB 1620
830 IF C$=CHR$(2)THEN PRINT@ 292, "Operation
      cancelled!";: GOTO 1090
840 SD$=MID$(BF$,5,2) + MID$(BF$,1,4)
850 ED$=MID$(BF$,11,2) + MID$(BF$,7,4)
860 IF ED$="      " THEN ED$="991231"
870 TC=0
880 TP$(1)="": TP$(2)=""
890 PT=INSTR(13,BF$,CHR$(255))
900 IF PT=0 THEN 1050
910 TP$(1)=MID$(BF$,13,PT-13)
920 FOR I=1 TO LEN(TP$(1))
930 IF MID$(TP$(1),I,1) < "a" OR MID$(TP$(1),I,1) > "z"
      THEN 950
940 MID$(TP$(1),I,1)=CHR$(ASC(MID$(TP$(1),I,1))-32)
950 NEXT I
960 NP=PT+1: TC=1
970 PT=INSTR(NP,BF$,CHR$(255))
980 IF PT=0 THEN 1050
990 TP$(2)=MID$(BF$,NP,PT-NP)
1000 FOR I=1 TO LEN(TP$(2))
1010 IF MID$(TP$(2),I,1) < "a" OR MID$(TP$(2),I,1) >
      "z" THEN 1030
1020 MID$(TP$(2),I,1)=CHR$(ASC(MID$(TP$(2),I,1))-32)
1030 NEXT I
1040 TC=2
1050 OPEN "APPSCH" FOR INPUT AS 1
1060 IF MID$(BF$,34,1)= "P" OR MID$(BF$,34,1)= "p"THEN
      GOSUB 1110 ELSE GOSUB 1290
1070 CLOSE
1080 PRINT@ 292,NV$: "End of file";
1090 FOR I=1 TO 1000: NEXT I
1100 RETURN
1110 'Module 3-A -- Print appointments on the printer
1120 OPEN "LPT:" FOR OUTPUT AS 2
1130 CR$=CHR$(13): FF$=CHR$(12)
1140 PRINT#2,CR$;CR$;TAB(33); "Appointment";CR$
1150 PRINT #2," Date Time Place";TAB(27);"Remarks"
1160 LC=6
1170 OD$=""
1180 GOSUB 1460

```



```

1190 IF PF=0 THEN 1280
1200 ND$=MID$(BF$,1,2) + "/" + MID$(BF$,3,2) + "/" +
    MID$(BF$,5,2)
1210 IF ND$=OD$ THEN ND$=" " ELSE OD$=ND$:
    LC=LC+1: PRINT#2,""
1220 PRINT#2,ND$;
1230 PRINT#2," " + MID$(BF$,7,2) + ":" + MID$(BF$,9,2)
    + " ";
1240 PRINT#2,MID$(BF$,11,30);" ";
1250 PRINT#2,MID$(BF$,41,33)
1260 LC=LC+1
1270 IF LC < 60 THEN PRINT FF$: GOTO 1180 ELSE 1140
1280 RETURN
1290 'Module 3-B -- Display appointments on the screen
1300 CLS: PRINT NV$;
1310 KEY1,"N": KEY2,"Q"
1320 PRINT "Appointment Date:"
1330 PRINT "Appointment Time:"
1340 PRINT "Place:"
1350 PRINT "Remarks: "
1360 PRINT@ 280,"Next Quit";
1370 GOSUB 1460
1380 IF PF=0 THEN PRINT@ 292, "End of file";: GOTO 1450
1390 PRINT@ 18,LEFT$(BF$,2) + "/" + MID$(BF$,3,2) + "/"
    + MID$(BF$,5,2);
1400 PRINT@ 58,MID$(BF$,7,2) + ":" + MID$(BF$,9,2);
1410 PRINT@ 90,MID$(BF$,11,30);
1420 PRINT@ 130,MID$(BF$,41,33);
1430 A$=INKEY$: IF A$="N" THEN 1370
1440 IF A$ <> "Q" THEN 1430
1450 RETURN
1460 'Module 3-C -- Validate input
1470 IF EOF(1) THEN PF=0: GOTO 1610
1480 BF$=INPUT$(70,1): PF=1
1490 BD$=MID$(BF$,5,2) + MID$(BF$,1,4)
1500 IF BD$ < SD$ OR BD$ > ED$ THEN 1460
1510 IF TC=0 GOTO 1610
1520 TB$=BF$
1530 FOR I=11 TO 83
1540 LC$=MID$(TB$,I,1)
1550 IF LC$ < "a" OR TC$ > "z" THEN 1570
1560 MID$(TB$,I,1)=CHR$(ASC(LC$)-32)
1570 NEXT I
1580 FOR I=1 TO TC
1590 IF INSTR(1,TB$,TP$(I))=0 THEN 1460
1600 NEXT I
1610 RETURN

```

```

1620 'Module 4 -- Keyboard input routine
1630 KEY1,CHR$(1): KEY2,CHR$(2): KEY8,""
1640 AS$=MID$(BF$,BP+1,1)
1650 IF AS$=" " THEN AS$=" "
1660 PRINT@ PP(WD) + CH, RV$,AS$;
1670 C$=INKEY$: IF C$="" THEN 1670
1680 IF C$=CHR$(28) THEN GOSUB 1840
1690 IF C$=CHR$(29) THEN GOSUB 1760
1700 IF C$ > CHR$(31) THEN GOSUB 2040
1710 IF C$=CHR$(8) THEN GOSUB 2150
1720 IF C$=CHR$(27) THEN GOSUB 1920
1730 IF C$=CHR$(13) THEN GOSUB 1980
1740 IF C$=CHR$(1) OR C$=CHR$(2) THEN RETURN
1750 GOTO 1640
1760 'Module 4-A -- Left arrow processing
1770 PRINT@ PP(WD)+CH,NV$,AS$;
1780 CH=CH-1: BP=BP-1
1790 IF CH >= 0 THEN GOTO 1830
1800 WD=WD-1
1810 IF WD < 0 THEN WD=MW: BP=MB
1820 CH=CC(WD)
1830 RETURN
1840 'Module 4-B -- Right arrow processing
1850 PRINT@ PP(WD)+CH,NV$,AS$;
1860 CH=CH+1: BP=BP+1
1870 IF CH <= CC(WD) GOTO 1910
1880 WD=WD+1
1890 IF WD > MW THEN WD=0: BP=0
1900 CH=0
1910 RETURN
1920 'Module 4-C -- Escape key processing
1930 BP=BP-CH
1940 CH=0
1950 MID$(BF$,BP+1,CC(WD)+1)= STRING$(CC(WD)+1," ")
1960 PRINT@ PP(WD)+CH,NV$, STRING$(CC(WD)+1,"_")
1970 RETURN
1980 'Module 4-D -- Enter key processing
1990 PRINT@ PP(WD)+CH,NV$,AS$;
2000 BP=BP+(CC(WD)-CH)+1: WD=WD+1
2010 IF WD > MW THEN WD=0: BP=0
2020 CH=0
2030 RETURN
2040 'Module 4-E -- Printable letter processing
2050 MID$(BF$,BP+1,1)=C$
2060 BP=BP+1
2070 IF C$=" " THEN C$=" "

```

```

2080 PRINT@ PP(WD)+CH,NV$;C$;
2090 CH=CH+1
2100 IF CH <= CC(WD) GOTO 2140
2110 WD=WD+1
2120 IF WD > MW THEN WD=0: BP=0
2130 CH=0
2140 RETURN
2150 'Module 4-F -- Backspace processing
2160 PRINT@ PP(WD)+CH,NV$;AS$;
2170 BP=BP-1
2180 CH=CH-1
2190 IF CH >= 0 GOTO 2230
2200 WD=WD-1
2210 IF WD < 0 THEN WD=MW: BP=MB
2220 CH=CC(WD)
2230 MID$(BF$,BP+1,1)=" "
2240 RETURN

```

How the Appointment Calendar Program Works

The following paragraphs explain how each section of the program functions:

Module 1: Main Driver Lines 20 through 210 contain the initialization section and main driver routine. It defines the function keys, sets up the normal/reverse video functions, and limits the maximum file count. It also displays the Desktop Manager menu and jumps to an appropriate subroutine, determined by what you type in. If you select the MENU option (by pressing F8), the program resets the function key definitions before returning to the Model 100 Main Menu.

Module 2: Appointment Entry Lines 220 through 620 let you enter an appointment. For the data entry, the subroutine calls the Keyboard Input Routine (Module 4), which inputs characters one at a time, stores them in a buffer, and displays them on the screen.

After you enter the data, the subroutine reads in the APPSCH.DO file record by record. It then compares the date and time of the newly entered record with those of the record just read. If the new record has a date and time earlier than that of the record just read in, the subroutine writes the new record to the TMPSCH.DO file before writing the old record into the file.

If the new record has a date and time later than that of the record just read in, the routine writes only the old record to the TMPSCH.DO file. (In case of ties, the new record is assumed to have a later date and time.)

The routine copies the old records straight to the TMPSCH.DO file without comparison. When the subroutine has completed the copy and insertion process, it deletes the old schedule file, APPSCH.DO, and the former temporary file, TMPSCH.DO, is renamed APPSCH.DO.

If the schedule file, APPSCH.DO, does not exist, the subroutine first creates it and then proceeds as just described. The subroutine does no error checking on the input data; you are responsible for entering valid dates, times, and so on.

Module 3: Display or Print Out an Appointment The subroutine in lines 630 through 1100 lets you display on the screen or print out on a printer any or all of the APPSCH.DO file. You may specify a starting date, ending date, two special topics (from the LOCATION or NOTES fields in the APPSCH.DO record), and whether you want the appointment displayed on the screen or on the printer. If you do not specify otherwise, the routine starts with the earliest date, finishes with the latest date, searches for no special topics, and displays the data on the screen.

To specify one or two special topics you must type them onto the TOPICS line and terminate each string with an ASCII 255 (you do so by pressing SHIFT GRPH C simultaneously). You can enter these strings and any other ASCII characters in either uppercase or lowercase letters, with the exception of ASCII 255. The subroutine first converts any entered lowercase letters in a string to uppercase; it does the same when it inputs data records before comparing strings.

Once you have selected PRINT, the subroutine calls one of two routines that send the data to the printer or the screen.

If the APPSCH.DO file does not exist, the subroutine creates it as a null file and proceeds as usual. (In this case, since the file is empty, the subroutine returns immediately to the Desktop Manager menu.)

Module 3-A: Print Appointments on the Printer Lines 1110 through 1280 format the data in APPSCH.DO into an 80-column printer format. It calls on another subroutine (Module 3-C) to

decide whether a given record meets your specified criteria. That subroutine returns either when it has a valid record (PF=1) or when it has reached the end of the file (PF=0).

This subroutine separates each day's appointments from the next with a blank line. If the APPSCH.DO file contains enough records, it will issue a form feed, reprint the headers, and start printing on the next page.

Module 3-B: Display Appointments on the Screen The subroutine in lines 1290 through 1450 displays the requested appointment data on the Model 100 screen. It calls a separate subroutine (Module 3-C) to decide whether a given record in APPSCH.DO meets your specified criteria for listing. This second subroutine returns either when it has a valid record (PF=1) or when it has reached the end of the file (PF=0).

The main subroutine in this module then displays the data, one record at a time. You press either F1, which makes the subroutine go to the next record, or F2, which makes the subroutine return to the Desktop Manager menu.

Module 3-C: Validate Input The subroutine of lines 1460 through 1610 reads in records from the APPSCH.DO file. It then compares each record's contents against the criteria you specified in Module 3. If a record meets the requirements (that is, the date is in the correct range, or there is a match on any of the specified topics, or both), the subroutine sets the print flag, PF, equal to 1 and returns to the calling routine (either Module 3-A or 3-B).

If a record doesn't meet the requirements, the subroutine continues to read in new records until it either finds a valid record or reaches the end of the APPSCH.DO file. When the routine reaches the end of a file, it sets PF equal to 0 and returns to the calling routine.

Module 4: Keyboard Input Routine This subroutine (lines 1620 through 1750) controls data entry for all the other subroutines of the program. When you type an entry, this subroutine expects that the calling program has defined a buffer, BF\$, which is MB+1 characters long. In addition, for each substring that makes up BF\$, the subroutine expects a character count (the substring's length - 1) for each word or substring CC(n), as well as a starting print position, PP(n). It also expects that there are MW+1 total words in BF\$.

Each time you press a key, the subroutine analyzes it and takes appropriate action. It echoes most characters as they are, except for spaces, which it echoes as underlining. The subroutine uses its own cursor, which is the reverse video version of the character in the buffer BF\$ that the buffer pointer BP points to.

To exit the routine, you must press F1, which is defined as an ASCII 1 and which signals the calling party that the data is good, or F2, which is defined as an ASCII 2 and which signals the calling party that the data should be ignored. Other control keys that the subroutine accepts are ENTER, BKSP, ESC, -, and -. Any other control keys are ignored.

Module 4-A: Left Arrow Processing The subroutine listed in lines 1760 through 1830 processes a left arrow input so that pressing the ← key moves the cursor one space to the left of its current position, updating the current print position and buffer pointer. If pressing moves the cursor to the last letter of the previous word, the word count is updated, as are the buffer pointer and print position. If the ← key is pressed when the cursor is on the first word of the screen, the subroutine “wraps around” to the last position of the last word on the screen.

Module 4-B: Right Arrow Processing Lines 1840 through 1910 process a right arrow input so that pressing the → key moves the cursor one space to the right of its current position, updating the current print position and buffer pointer. If pressing moves the cursor to a new word, the word count is updated, as are the print position and the buffer pointer. If the cursor is on the last word on the screen and the → key is pressed, the cursor and pointers “wrap around” to the beginning of the first word.

Module 4-C: ESCAPE Key Processing This subroutine (lines 1920 through 1970) processes the pressing of the ESC (escape) key. It resets the current print position to the start of the current word, updates the buffer pointer, and erases the current word, both on screen and in the buffer.

Module 4-D: ENTER Key Processing The subroutine in lines 1980 through 2030 processes the pressing of the ENTER key. It updates the cursor print position to the start of the next word and updates the buffer pointer. If the cursor is on the last word on the

screen and ENTER is pressed, the subroutine “wraps around” to the first word on the screen.

Module 4-E: Printable Letter Processing This subroutine (lines 2040 through 2140) processes the pressing of a printable character (any character higher than ASCII 31). It echoes the character at the current print position, moves the character into the buffer, and then changes the current print position by one increment. If this involves moving to a new word, it updates the word count also.

All characters are echoed as is, except the space character (ASCII 32), which is echoed as an underline (although it is stored in the buffer as a space).

Module 4-F: BACKSPACE Processing Lines 2150 through 2240 process the pressing of the BKSP (backspace) key. This key moves the cursor to the previous print position, erasing the previous character from the screen and from the buffer. It updates the current print position and buffer pointer and, if necessary, the word count.

The variables used in the Appointment Calendar program are listed in Table 8-1.

USING THE APPOINTMENT CALENDAR PROGRAM

Once you’ve typed in and saved the Appointment Calendar program (in RAM and on cassette tape), return to the Model 100’s Main Menu, where you’ll see APP.BA listed. Press the space bar to position the cursor on the word APP.BA, then press ENTER to start the program.

Selecting an Appointment Calendar Option

The Appointment Calendar menu will then appear on your screen, as shown in Figure 8-4. Note that the lines ENTER APPOINTMENT and PRINT APPOINTMENT are displayed in reverse video. To move the cursor from one option to the other, press F1 (labeled NEXT on the screen). As you press F1, the other option appears in reverse video, just as it does on the Model 100 Main Menu. When you have moved to the option you want, press F2 (labeled SELECT on the screen).

Table 8-1. *Variables Used in the Appointment Calendar Program*

Variable	Definition
A\$	Answer to a prompt
BD\$	Date from input record
BF\$	Data buffer
BP	Buffer pointer (0 through buffer size -1)
C\$	Input character
CC(<i>i</i>)	Character count (number of characters/word -1)
CH	Current position within a word (0 through CC -1)
CR\$	ASCII for carriage return
ED\$	Ending date for printout request
FF\$	ASCII for form feed
I	Loop counter
ID\$	Input record date
IP\$	Input record (from data file)
LC	Line count
MB	Maximum buffer size for input form (size of buffer -1)
MW	Maximum words for input form
ND\$	Date of newest input record
NV\$	ASCII escape sequence for normal video
NP	Pointer to character after ASCII 255
OD\$	Old date (last date printed)
OP\$(<i>i</i>)	Menu option
PF	Print flag (1 → print; 0 → don't print)
PP(<i>i</i>)	Start print position for a word on an input form
PT	Pointer to ASCII 255 in special topic request line
R	Counter for which menu option should be reverse video
RV\$	ASCII escape sequence for reverse video
S1\$	Date/time field of new record
S2\$	Date/time field of input record
SD\$	Starting date for printout request
TB\$	Temporary buffer (for converting lowercase to upper)
TC	Count of special topics for printout request (0-2)
TP\$(<i>i</i>)	Special topic string for printout request
WD	Current word for input form (0 through MW)

Ending an Appointment Scheduling Session

When you've finished your appointment scheduling session and want to return to the Model 100 Main Menu, press F8 (labeled MENU on the screen).

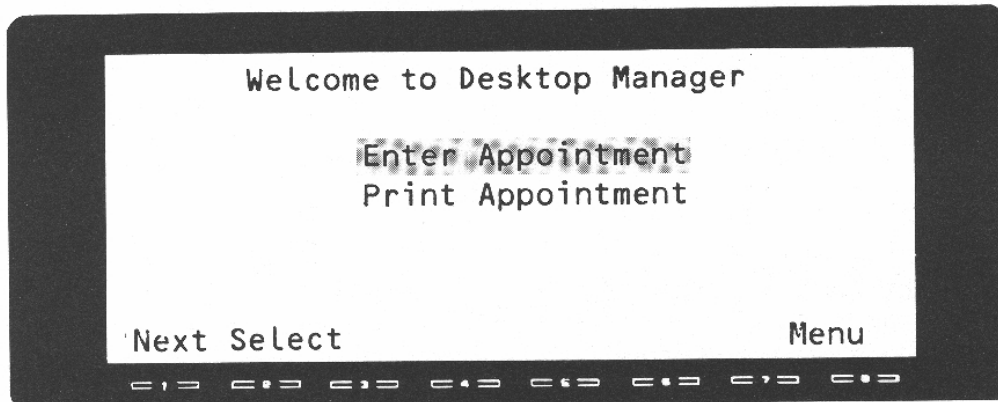


Figure 8-4. Appointment Calendar menu

Scheduling Appointments

Both Appointment Calendar routines, ENTER and PRINT, use the same method of accepting the information you type in: each routine presents you with a “form,” ready for you to fill out.

To Enter Information To set up an appointment, simply type in the data. The cursor advances every time you enter a character. When you have typed the last character of a particular word or number, the cursor will automatically advance to the start of the next word.

If You Type in a Wrong Character Don’t worry about typing errors. If you do make a mistake, use BKSP to erase the character. This key deletes the character immediately preceding the current cursor position.

If You Want to Delete a Word If you want to delete an entire word, place the cursor over it and press ESC. This key deletes all the characters in the current word or item and places the cursor where the word’s first character had been.

Moving the Cursor You can use the left and right arrows to back up and advance the cursor, respectively. Unlike BKSP, these keys do not delete any characters. If you want to jump to the next word before you reach the end of the current word, press ENTER and the cursor will jump to the start of the next word.

Recording the Appointment When you are satisfied with the appointments you have entered, press F1 to record the appointment

into the APPSCH.DO data file. The information will be stored and another menu will appear.

If at any time you decide you don't want to complete the form (for instance if you selected PRINT when you wanted to ENTER), press F2 to return to the Desktop Manager menu.

Typing in a Scheduled Appointment

To set up an appointment in an appointment file (automatically created and named APPSCH.DO), press F1 to move the cursor to the words

Enter Appointment

and press F2. The routine will display the Appointment Entry Form (Figure 8-5).

Appointment Date Type in the date of the appointment in *mm/dd/yy* form. For example, type **04/13/83** for April 13, 1983.

Appointment Time Next, type in the time in 24-hour format. For instance, type **13:30** for 1:30 P.M.

Where? Then type in the location of the appointment. This can be a person's office or an address (or whatever makes sense to you)—for example, "Conference Room, 9th Floor" or "Room 101, 1332 Morton Street."

Remarks Finally, type in any special remarks or notes about the appointment. If it is a meeting you must attend, you might

```

Appointment Date:  __/__/__
Appointment Time:  __:__
Where?             _____
Remarks           _____

Rcrd Cncl
  
```

Figure 8-5. Appointment Entry Form

want to enter a subject—for instance, “Last quarter sales report.”

When Sue Campbell needed to make an appointment with her local sales representatives, she filled out the Appointment Form as it appears in Figure 8-6.

Recording Scheduled Appointments

When you have made all the appointments you want, press F1. This stores your data (in a compressed format) in the file APPSCH.DO.

The program stores first according to date and then according to time. Consequently, a meeting on August 16 at 11:00 A.M. is stored before an August 16 appointment at 1:00 P.M.

Cancelling an Entry

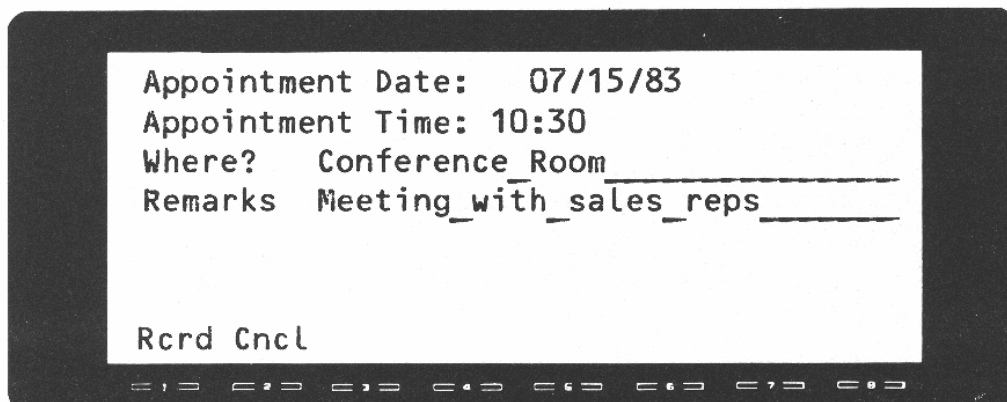
If you want to cancel the data before it is recorded, press F2 and you'll return to the Desktop Manager menu.

Displaying and Printing Out Your Appointments

To display or print out any or all appointments, position the Desktop Manager menu cursor on the words

Print Appointment

and press F2. The program will display the Appointment Print Form (Figure 8-7).



The screenshot shows a terminal window with the following text:

```

Appointment Date: 07/15/83
Appointment Time: 10:30
Where? Conference Room
Remarks Meeting with sales reps

Rcrd Cncl
  
```

At the bottom of the terminal window, there is a row of navigation keys: `=| =| =| =| =| =| =| =| =|`.

Figure 8-6. Appointment Entry Form filled out

```

Starting with date:  __/__/__
Ending with date:  __/__/__
Specific topic(s):  _____
Print to Screen or Printer (S/P):  _

Print Cncl
F1 F2 F3 F4 F5 F6 F7 F8

```

Figure 8-7. Appointment Print Form

Displaying Appointments by Date To display or print out an appointment, you can specify starting and ending dates. The program will print all appointments that begin on or after the starting date and occur on or before the ending date.

- If you leave the starting date blank, the program will start printing at the beginning of the file.
- If you leave the ending date blank, the program will print to the end of the file.

Displaying an Appointment Schedule by Topic The SPECIFIC TOPICS blank lets you indicate one or two Appointment Entry topics you want to see. For example, you may want to see all **Conferences with sales reps**, regardless of the date, but have no interest in **Luncheons**.

To enter a topic (such as Conference), type it in, then press SHIFT GRPH C. This puts a half-solid graphics "block" at the end of the topic or word you typed in.

If you want to specify a second topic, type it in after the first graphics block and again press SHIFT GRPH C. For example, type

CONFERENCE ■ SALES REPS ■

to see the list of conferences with sales reps.

If you don't want to specify a second topic, simply press ENTER after the first graphics block. If you don't want to specify any topics, leave this space blank by simply pressing ENTER.

Printing the Appointment on the Screen or Printer The final input line on the form allows you to tell the program to dis-

play an appointment on the Model 100 screen or to print it out on the printer.

- To display an appointment on the screen, either type nothing and press ENTER or type **S** or **s**.
- To print the appointment on the printer, type **P** or **p**.

For example, if you want to see all appointments from the beginning of the file up to July 15 that involve Conference, and you want the appointments to be printed on the printer, you might fill out the form as shown in Figure 8-8. Note that **Conference** is in lowercase. The program doesn't care whether you use uppercase, lowercase, or both.

If you have specified a printout of the appointment, make sure your printer is correctly connected to the Model 100, and then press F1. The program will print out the appointments you want in a format like that in Figure 8-9. The information will be printed out in the same order in which it was stored: from earliest to latest.

Press
SHIFT GRAPH C
here

Starting with date: / /
Ending with date: 07/15/83
Specific topic(s): conference
Print to Screen or Printer (S/P): p

Print Cncl

Figure 8-8. Filling out the Print Form to print out appointments.

Date	Time	Place	Remarks
07/15/83	10:30	Conference Room	Sales reps
	12:30	MacKenzie House	Lunch

Figure 8-9. Format of printout

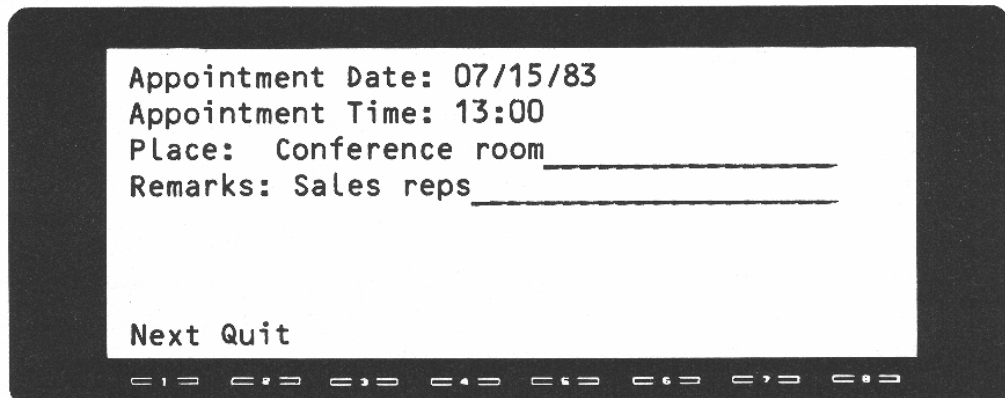


Figure 8-10. Displaying appointments on the screen

When the end of the file is reached, the message END OF FILE will appear at the bottom of the screen and the Desktop Manager menu will return.

If you want to display the appointments on the Model 100 screen, press F1. The information will be displayed as in Figure 8-10. To see the next appointment, press F1 again. If you don't want to see any more appointments, press F2. When there are no more requested appointments in the file, an END OF FILE message will appear at the bottom of the screen and the Desktop Manager menu will reappear.

CALCULATOR

Sue knew that her Model 100, like most personal computers, could be used in two different ways, or "modes":

- Program Mode: You write a BASIC program that uses the same instructions over and over.
- Immediate Mode: You type in instructions (such as add, subtract, divide) that can't be reused.

The programs in this book are all written in the programming language called BASIC. Obviously, you (or some BASIC programmer) can create large-scale, very powerful programs with BASIC in the Model 100's Program Mode. These programs consist of BASIC instructions stored in program lines.

However, BASIC also has an Immediate Mode. In this mode, a single BASIC command (such as operations in a math problem) can be executed and the answer printed out immediately.

The Immediate Mode Calculator

When you need to make a few quick calculations that don't require a long program, move the Model 100 Main Menu cursor to the word BASIC and press ENTER. Certain copyright information and the BASIC OK prompt appear, and below them a blinking cursor.

Once in BASIC, you can use the Model 100 like any desktop calculator, with two important exceptions:

- If you want to see the answer to a problem on the Model 100 screen, you must preface that problem by typing in the **PRINT** command.
- After entering a problem, you do not have to type the equal sign (=) to get the answer—just press ENTER.

The Print Command Sue was projecting order requirements for the year. She typed in the following:

```
PRINT (452*3)/12 ENTER
```

The answer (111.33) appeared on the screen. (The Model 100 will display quite a few numbers to the right of the decimal place. For some calculations, you'll need this precision; for others, you won't. You can program the Model 100 to display only as many places as you need; see the section on FIX in the Model 100 owner's manual.)

If you don't want to keep typing **PRINT** over and over, you can substitute a question mark (?) for it. For example:

```
? (452*3)/12 ENTER
```

Another way—perhaps the easiest in the long run—to input the **PRINT** command is to assign it to a function key. Then you have only to press a single key instead of two or more. Model 100 BASIC defines every function key except keys F6 and F7. For now, assign the ? to function key F6 by typing

```
KEY6,"? " ENTER
```

(Notice we left a blank space between the question mark and the closing quotation mark so the display will be easier to read, being further from the F7 display than otherwise.)

Now, when you want to calculate a math problem such as the one above, just press F6 and type $(452*3)/12$. The Model 100 screen will display:

? $(452*3)/12$

When you're ready for the answer, press ENTER.

Model 100 BASIC Variables BASIC also lets you use variables in the Model 100's Immediate Mode. For instance:

A = 100 / 10 ENTER

? A ENTER

10

is the same as

PRINT 100 / 10 ENTER

10

In short, to use the Model 100 as a calculator in the Immediate Mode, follow these steps:

1. Type in the word **PRINT** or ? to tell BASIC to display the answer on the screen.
2. Type in the problem.
3. Press ENTER.

Say, for example, we want to add the numbers 25.5549, 19.3341, and 123.04. Type

? 25.5549+19.3341+123.04 ENTER

There's no need to type an equal sign (=). The Model 100 will then display the answer:

167.929

If you want a "printing calculator," connect a printer to your Model 100 and use the command **LPRINT** instead of **PRINT**. For instance,

LPRINT 10 * 10 ENTER

will print out the answer on paper instead of displaying it on the screen. (If you use the **LPRINT** command when the Model 100 is not connected to a printer, the computer will “lock up” on you. Press **BREAK** to “unlock” the computer.)

To simplify typing, you might want the remaining undefined function key, **F7**, to be defined as the **LPRINT** function key. To do this, type

KEY7,“LPRINT ” ENTER

Any time you press **F7** in **BASIC**, **LPRINT** will appear on the screen.

In both the Immediate and Program Modes, Model 100 **BASIC** recognizes a complete set of math operators; these are listed in Table 8-2. You may not be familiar with the last two operators. Integer division (****) is similar to normal division, except that instead of returning a whole number followed by a decimal representation of the fractional remainder, it “truncates,” or omits the fractional remainder. Modulus arithmetic (**MOD**) is the complement to integer division: it omits the whole number portion of the division and keeps the remainder. For example, if you type in

? 16/5 ENTER

The Model 100 will display the answer

3.2

If you type in

? 16\5 ENTER

Table 8-2. Model 100 BASIC Math Operators

Operator	What it does
+	Adds two values together
-	Subtracts one value from another
*	Multiplies one value by another
/	Divides one value by another
^	Takes a value to the specified power (press SHIFT 6)
\	Integer division (press GRPH -)
MOD	Modulus arithmetic

the Model 100 will display the number

3

Finally, if you type in

? 16 MOD 5 ENTER

the Model 100 will display

1

That is, 5 goes into 16 three times with a remainder of 1.

When a math problem involves several arithmetic operations, the Model 100 performs them in a sequence, according to the following priority levels:

1. Values enclosed in parentheses are evaluated first.
2. Exponentiation is then performed (left to right).
3. Multiplication and division are next (left to right).
4. Integer division and MODulus are then evaluated (left to right).
5. Addition and subtraction then take place.
6. Comparison (greater-than, less-than, or equal to) is next.
7. Logical operators (AND, OR, NOT) are always the last to be performed.

For example, in Immediate Mode, the Model 100 interprets the following expressions like this:

? 10+2*4 ENTER

18

PRINT (10*2)*4 ENTER

80

? 3*2^3 ENTER

24

? 25\6*6 ENTER

0

Print (10+5+3+2+1)MOD15 ENTER

6

```
? 10/3 ENTER
3.333333333333
```

The Program Mode Calculator

For more involved (or more repetitive) math operations, you might want to write a BASIC program to use your Model 100 as a calculator. Say, for example, you have a series of numbers to add up, such as expenses and income amounts. Here we'll list a few short programs that allow you to perform some math operations. (Don't worry—you don't need a programming degree to enter them; you barely need to know BASIC!)

Adding a Series of Numbers The following program asks you to type in numbers that need to be added up. You can enter positive or negative numbers; precede negative numbers with a minus sign (−). To end the program and get the answer, type a 0 when the program asks you for a number. When typing in this program, begin each line with a number (5, 10, 20, and so on) and end it by pressing ENTER:

```
5' ** Add Numbers **
10 SM=0
20 INPUT "Enter a number";N
30 IF CINT(N)=0 THEN 60
40 SM = SM + N
50 GOTO 20
60 PRINT "The total is: ";SM
```

Then either type in **RUN** and press ENTER, or press F4. (Be sure to type 0 ENTER when you're ready for the answer.)

Adding and Averaging To add numbers and find the average, type in and run the following program:

```
5' ** Add and Average Numbers **
10 SM=0
20 I=0
30 INPUT "Next number (or 0 to quit)";N
40 IF CINT(N)=0 THEN 80
50 SM = SM + N
60 I = I + 1
70 GOTO 30
80 PRINT "The total was: ";SM
90 PRINT "The average was: ";SM/I
```

Simplifying Equations As well as simplifying repetitive calculations (like adding a series of numbers together), a Program Mode Calculator can also simplify a complicated equation. For example, the formula for calculating compound interest is

$$\frac{\text{present value} \times (1 + \text{percent interest})^n}{\text{present value} \times (1 + \text{percent interest})} = \text{future value}$$

or, in BASIC terms:

$$\text{FV} = \text{PV} * (1 + \text{I}/100)^{\wedge} \text{N}$$

If you use a calculator to solve this equation, it's easy to get lost and forget where you are in the equation. And if you need to calculate the result on more than one set of input data, you'll have to enter the entire equation every time.

The Program Mode Calculator lets you program this equation into the Model 100 so that all you need to do is RUN the program and type in the data. For example, the following program computes the future value of an amount—say a loan or CD (Certificate of Deposit) account—using compound interest:

```
5 ' ** Compute Future Value **
10 INPUT "Present value (or 0 to quit)";PV
20 IF CINT(PV)=0 THEN END
30 INPUT "Monthly percent interest rate";I
40 INPUT "Number of months";N
50 PRINT "The future value is";USING"$#####.##";
    PV*(1+I/100)^N
60 GOTO 10
```

Model 100 BASIC Math Functions In addition to the simple arithmetic operators (+, −, and so on), Model 100 BASIC also has certain “functions,” such as square root, sine, cosine, and logarithms, that calculate special values.

In general, the functions operate like the addition or subtraction operators, except that the “operator” is a BASIC “keyword” and the “operand” (the number being operated on) follows the function name parenthetically.

For example, the function for square root is SQR. To find the square root of 36, type in

? SQR (36) ENTER

$$\sigma = \sqrt{\frac{\sum_{i=1}^M (x_i - \bar{x})^2}{m}}$$

Figure 8-11. Formula for standard deviation

The Model 100 will display

6

Functions, like any other expression, can be used in formulas that you write into a program. For example, the standard deviation of a set of numbers, given by the formula in Figure 8-11, can be calculated by use of the following program:

```
5 ' ** Standard Deviation **
10 INPUT "Total number of entries";TN
20 DIM N(TN)
30 S1 = 0
40 FOR I=1 TO TN
50 PRINT "Enter number";I;
60 INPUT N(I)
70 S1 = S1 + N(I)
80 NEXT I
90 AV = S1 / TN
100 S2 = 0
110 FOR I=1 TO TN
120 S2 = S2 + ( N(I) - AV) ^ 2
130 NEXT I
140 PRINT "The average is:";AV
150 PRINT "The standard deviation is:";CSNG(SQR(S2/TN))
```

ALARM CLOCK

Sometimes Sue needs a quick reminder that she has to make a phone call or attend a meeting. The Full-Display Alarm Clock serves as a desktop alarm for anyone who needs to be reminded of

the time. The program we present here creates a full-screen digital clock that displays hours, minutes, and seconds. It differs from other digital clocks in that you do not have to set the current time before using the clock; it automatically gets the time from the Model 100's built-in clock.

If you wish, you can use the alarm feature of this clock to set the time you want the alarm to go off. At the specified time, the alarm will sound by beeping every five seconds.

The Model 100 alarm clock is unlike some computer "clocks" that lose time while their alarms sound. As soon as you turn the alarm off, the current time will be displayed.

Connecting the Hardware

No special hardware connections need to be made to use this program. If you need to save the program on tape to free up memory, you may want to connect a cassette recorder to the Model 100. This program will work on an 8K Model 100.

Setting Up the Software

Since this is a BASIC program, you'll need to be sure the Model 100 Main Menu cursor is on the word BASIC (press the space bar until it is) and then press ENTER. Some copyright information and the BASIC OK prompt, followed by the blinking cursor, will appear. You can then begin typing in the program exactly as it is listed. Remember to begin each program line with a number (5, 10, 20, 30, and so on) and end it by pressing ENTER.

```

5 '*** Full-Display Digital Alarm Clock -- Copyright
  1983 Sayre & Erickson ***
10 CLS: PRINT@ 280, "Set  Clear";
20 PRINT@ 314, "Menu";
30 ONKEY GOSUB 960,1330,,,,,,1360
40 KEY ON
50 SX(0)=6: SX(1)=42: SX(2)=87: SX(3)=123: SX(4)=168:
  SX(5)=203
60 LINE(78,18)-(83,25),1,BF: LINE(78,33)-(83,40),1,BF
70 LINE (159,18)-(164,25),1,BF: LINE(159,33)-
  (164,40),1,BF
80 TP=0
90 ST$=TIME$
100 FOR J=0 TO 5

```

```
110 X=SX(J)
120 TP=TP+1: IF TP=3 OR TP=6 THEN TP=TP+1
130 TM(J)=VAL(MID$(ST$,TP,1))
140 FOR N=0 TO TM(J)
150 ON N+1 GOSUB 500,560,620,700,740,
    780,820,840,890,930
160 NEXT N
170 NEXT J
180 HM=VAL(MID$(ST$,1,1))
190 HL=VAL(MID$(ST$,2,1))
200 MM=VAL(MID$(ST$,4,1))
210 ML=VAL(MID$(ST$,5,1))
220 SM=VAL(MID$(ST$,7,1))
230 SL=VAL(MID$(ST$,8,1))
240 TIMES$=ST$
250 IF VAL(MID$(TIMES$,8,1))=SL THEN 250
260 X=SX(5)
270 SL=VAL(MID$(TIMES$,8,1))
280 ON SL + 1 GOSUB 500,560,620,700,740,
    780,820,840,890,930
290 IF SL <> 0 THEN 250
300 SM=(SM+1)MOD6
310 X=SX(4)
320 ON SM + 1 GOSUB 500,560,620,700,740,780
330 IF SM <> 0 THEN 250
340 ML=(ML+1)MOD10
350 X=SX(3)
360 ON ML + 1 GOSUB 500,560,620,700,740,
    780,820,840,890,930
370 IF ML <> 0 THEN 250
380 MM=(MM+1)MOD6
390 X=SX(2)
400 ON MM + 1 GOSUB 500,560,620,700,740,780
410 IF MM <> 0 THEN 250
420 IF HM=2 THEN HL=(HL+1)MOD4 ELSE HL=(HL+1)MOD10
430 X=SX(1)
440 ON HL + 1 GOSUB 500,560,620,700,740,
    780,820,840,890,930
450 IF HL <> 0 THEN 250
460 HM=(HM+1)MOD3
470 X=SX(0)
480 ON HM + 1 GOSUB 500,560,620
490 GOTO 250
500 LINE(X+5,27)-(X+27,31),0,BF
510 LINE(X+5,51)-(X+27,55),1,BF
520 LINE(X,2)-(X+4,55),1,BF
530 LINE(X+5,2)-(X+27,6),1,BF
```

```

540 LINE(X+28,2)-(X+32,55),1,BF
550 RETURN
560 LINE (X,2)-(X+4,55),0,BF
570 LINE (X+5,2)-(X+27,6),0,BF
580 LINE (X+5,51)-(X+27,55),0,BF
590 LINE(X+28,2)-(X+32,55),0,BF
600 LINE (X+13,2)-(X+17,55),1,BF
610 RETURN
620 LINE(X+13,2)-(X+17,55),0,BF
630 LINE (X,2)-(X+32,6),1,BF
640 LINE(X+28,7)-(X+32,26),1,BF
650 LINE (X,27)-(X+4,51),1,BF
660 LINE (X,27)-(X+32,31),1,BF
670 LINE (X,51)-(X+32,55),1,BF
680 LINE (X+28,32)-(X+32,50),0,BF
690 RETURN
700 LINE (X,7)-(X+4,50),0,BF
710 LINE (X+28,32)-(X+32,51),1,BF
720 LINE (X+5,27)-(X+27,31),1,BF
730 RETURN
740 LINE(X+5,2)-(X+27,6),0,BF
750 LINE(X,51)-(X+27,55),0,BF
760 LINE(X,7)-(X+4,31),1,BF
770 RETURN
780 LINE(X+28,7)-(X+32,26),0,BF
790 LINE(X+5,2)-(X+27,6),1,BF
800 LINE (X,51)-(X+27,55),1,BF
810 RETURN
820 LINE (X,32)-(X+4,50),1,BF
830 RETURN
840 LINE(X+28,7)-(X+32,27),1,BF
850 LINE(X,7)-(X+4,55),0,BF
860 LINE(X+5,27)-(X+27,31),0,BF
870 LINE (X+5,51)-(X+27,55),0,BF
880 RETURN
890 LINE (X,7)-(X+4,55),1,BF
900 LINE (X+5,27)-(X+27,31),1,BF
910 LINE (X+5,51)-(X+27,55),1,BF
920 RETURN
930 LINE(X,32)-(X+4,55),0,BF
940 LINE (X+5,51)-(X+27,55),0,BF
950 RETURN
960 ON ERROR GOTO 1140
970 TM$=""
980 TP$=TIMES$
990 A$="": CT=0
1000 PRINT@ 280, "Set alarm to: ";

```



```

1010 PRINT@ 294, ""';
1020 A$=INPUT$(1)
1030 CT=CT+1
1040 IF A$=CHR$(13) THEN 1080
1050 IF A$=CHR$(27) THEN PRINT@ 280,STRING$(20," ");:
      GOTO 1120
1060 TM$=TM$+A$: PRINT@ 293+CT,A$;
1070 GOTO 1020
1080 ON TIME$=TM$ GOSUB 1150
1090 TIME$ ON
1100 PRINT@ 292, "Alarm set to ";TM$;
1110 TIME$=TP$
1120 PRINT@ 280, "Set Clear ";
1130 RETURN
1140 RESUME 960
1150 BEEP
1160 HR=VAL(LEFT$(TIME$,2))
1170 MN=VAL(MID$(TIME$,4,2))
1180 SC=VAL(RIGHT$(TIME$,2))+5
1190 IF SC < 59 THEN 1250
1200 SC=SC MOD60
1210 MN=MN+1
1220 IF MN < 59 THEN 1250
1230 MN=MN MOD59
1240 HR=(HR+1)MOD24
1250 HR$=RIGHT$(STR$(HR),2): MN$=RIGHT$(STR$(MN),2):
      SC$=RIGHT$(STR$(SC),2)
1260 TM$=HR$ + ":" + MN$ + ":" + SC$
1270 FOR N=1 TO 8
1280 IF MID$(TM$,N,1)=" " THEN MID$(TM$,N,1)="0"
1290 NEXT N
1300 ON TIME$=TM$ GOSUB 1150
1310 BEEP
1320 RETURN
1330 TIME$ OFF
1340 PRINT@ 292,"";
1350 RETURN
1360 MENU

```

Once you have typed in the entire program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "CLOCK" ENTER

We also suggest that you save the program onto cassette tape at

that time. Connect a cassette recorder to the Model 100 (see your owner's manual for details on volume control) and simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the CLOCK program is loaded into memory, then type

CSAVE "CLOCK" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as CLOCK.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line with the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, go ahead and save what you do type. Later, load those portions that you previously typed in, and then type in the rest of the program. Finally, save it again under the same name.

Using the Alarm Clock Program

To begin using the Alarm Clock program, position the Model 100 Main Menu cursor over the word CLOCK.BA and press ENTER. The screen will clear and the program will start filling the Model 100 display with the clock digits. Depending on the current time, this will take from 5 to 20 seconds. After the screen is filled, the clock begins functioning just like a normal clock.

Setting the Alarm On the bottom of the screen are the words Set, Clear, and Menu. (See Figure 8-12.) Notice that these words are above the F1, F2, and F8 function keys respectively. To set the alarm, press F1. You'll be prompted

Set alarm to:

Type in the time (in 24-hour format—HH:MM:SS) at which you want the alarm to sound and press ENTER. If you make a mistake, press ENTER and reset the alarm. You cannot use BKSP or the left arrow to delete characters or reposition the cursor. If you type in an invalid time (such as 25:00:59), the program will ask you for



Figure 8-12. Display of Set, Clear, and Menu

a correct alarm time. If you decide to cancel the operation altogether, press ESC.

If you want to set the alarm to go off at 2:30 P.M.:

1. Press F1 and the prompt

Set alarm to:

will appear.

2. Type in the time in 24-hour format:

14:30:00 ENTER

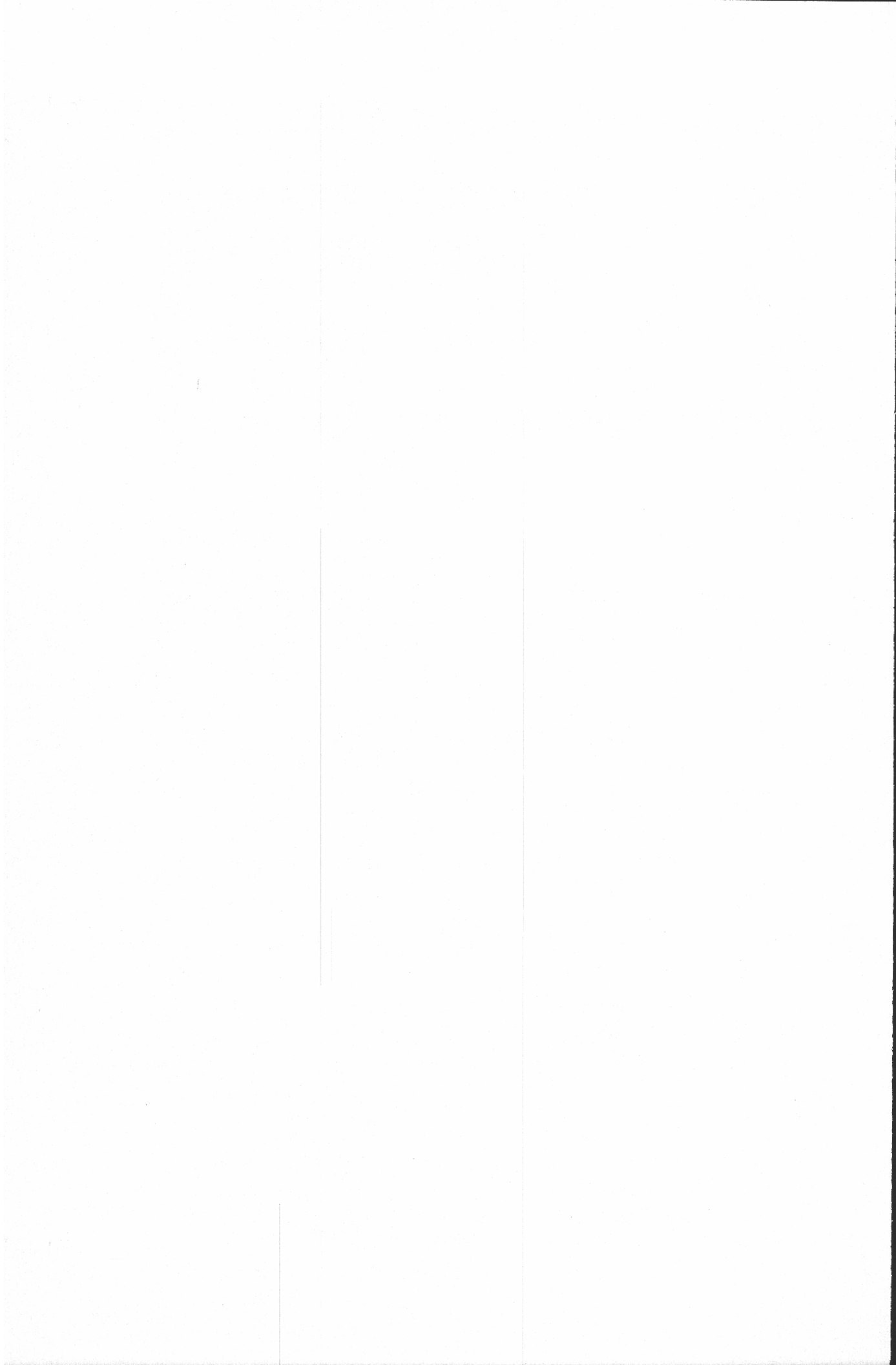
3. The screen will say

Set alarm to: 14:30:00

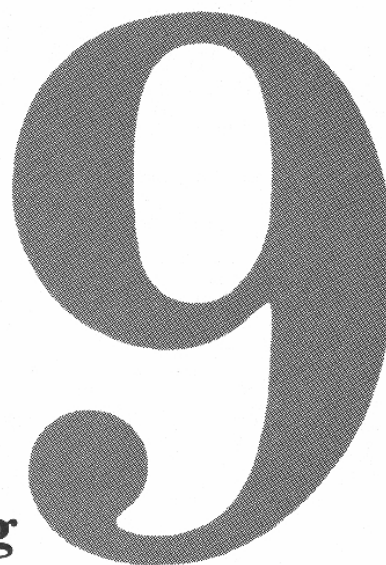
The "alarm time" will be on continuous display at the bottom of the screen.

Turning Off the Alarm Pressing F2 allows you to do two things:

- Turn off the alarm once it has sounded.
- Cancel the alarm before it has sounded so that it won't sound at all.



Computer Conferencing



Fifteen years ago, when Sue Campbell started at the graphic art and printing supplies firm she works for, the company had only two sales offices and fewer than ten employees, all in Connecticut. At that time, it wasn't a problem to keep track of people, places, and inventories. As time passed and the company grew, air travel and telephone calls made it easy for Sue to keep up with her scattered offices. However, when the time came that there were stores, warehouses, and plants located coast to coast, communications became a major problem that telephones couldn't handle.

Thanks to her Model 100, Sue had already cleared her desk of everything except a telephone and a few odds and ends. She came to the conclusion that her computer itself could provide at least one solution to her communications problem. She was already familiar with EMAIL, CompuServe's electronic mail service, and she realized it was too limited for her requirements. On the other hand,

she realized that long-distance conference calls by telephone were often a complicated and expensive way for plant managers, warehouse supervisors, and sales personnel across the country to communicate with one another. After some investigating, she decided that computer conferencing was the answer.

WHAT IS COMPUTER CONFERENCING?

Computer conferencing, which is also called teleconferencing, is a form of centralized information exchange that can be used by a number of people at different locations. There are many ways computers can be used for conferences. In most areas, conferences can be set up by anyone through just about any information service. In this chapter, however, we're going to limit our discussion to CompuServe's CB Simulator and describe how to set up and run a closed conference.

Depending on the conference topic and participants' preference, the conference can be "closed" (admittance to the conference requires password) or it can be "open" (anyone can be admitted).

The Model 100 is the ideal computer to use for teleconferencing. It offers distinct advantages over a telephone conference call in that information relevant to the conference topic can be uploaded (by use of TELCOM's upload feature) into the conference without interrupting the discussion. Other conference participants can then download that information by using TELCOM's download feature. If the Model 100's are connected to printers, printed copies of the information can be obtained.

An advantage of teleconferencing that is exclusive to CompuServe (and not possible in telephone conference calls) is that you can "go off to the side" and talk to a conferee in complete privacy from the other conferees. This will allow two people to prepare a joint proposal to present to the rest of the group.

Preparing for the Conference

One of CompuServe's features is that the CB Simulator can accommodate a large number of people. However, as in any conference, the more people involved, the harder it is for one person to get a word in edgewise. Therefore, limit the size of your conference. If you can't limit the size, try to identify some people as "talkers" and others as "listeners."

The first step to actually starting the computer conference is to identify and notify the people about the date and time the conference is to begin. Notification can be by telephone, EMAIL, or simply a letter in the mail. Participants should also be advised of the conference protocol:

- Everyone should use a "handle" (name) that can be identified by others in the group. We suggest everyone use his or her own name (first, last, or initials) when joining the conference.
- Everyone should be notified of the channel the conference will be on. CompuServe's CB Simulator has 36 channels. Some are reserved for special purposes; others are set aside for conferences. We recommend that you not use channels 1, 19, or 33 for conferencing.
- If the conference is to be closed, participants should be given the password (or "scramble" code).
- Identify the conference leader. Someone has to be in charge to arbitrate disputes or say who can talk and when; otherwise, money and time will be wasted.

Be sure to include any other information (such as topics) or conference rules at the same time.

CONNECTING THE HARDWARE

To begin a computer conferencing session, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a direct-connect telephone
- A Model 100 Acoustic Cup set and a telephone (such as a pay phone).

If you're connecting the Model 100 directly to a telephone (such as in an office or hotel room), use the Model 100 Modem Cable and set up the system as shown in Figure 9-1. Set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG. (Both switches are on the left side of the computer.)

If you're connecting the Model 100 to the Model 100 Acoustic Cups, set up the system as shown in Figure 9-2. Set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

Since it's possible to download information into a Model 100 text file, we suggest you have a minimum 16K of RAM. However,

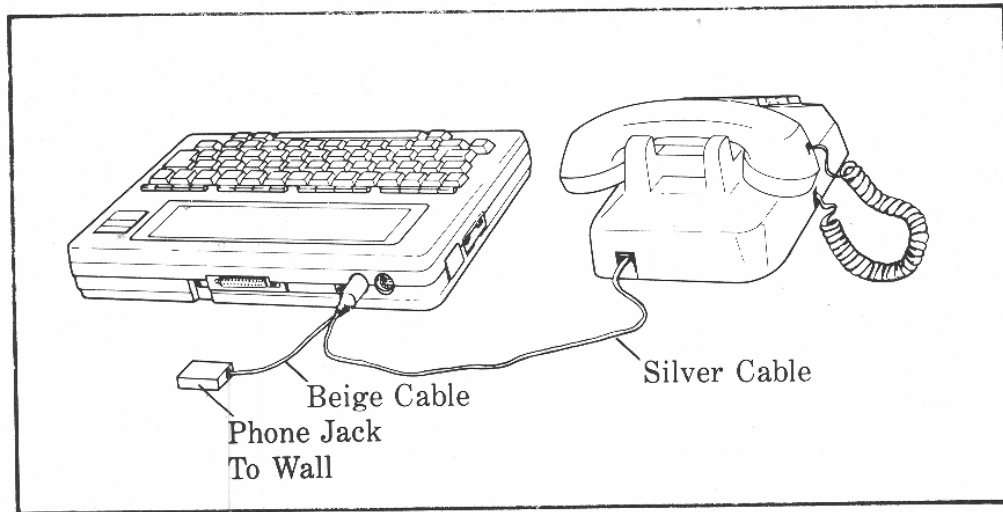


Figure 9-1. *Connecting the Model 100 to a telephone by the Modem Cable*

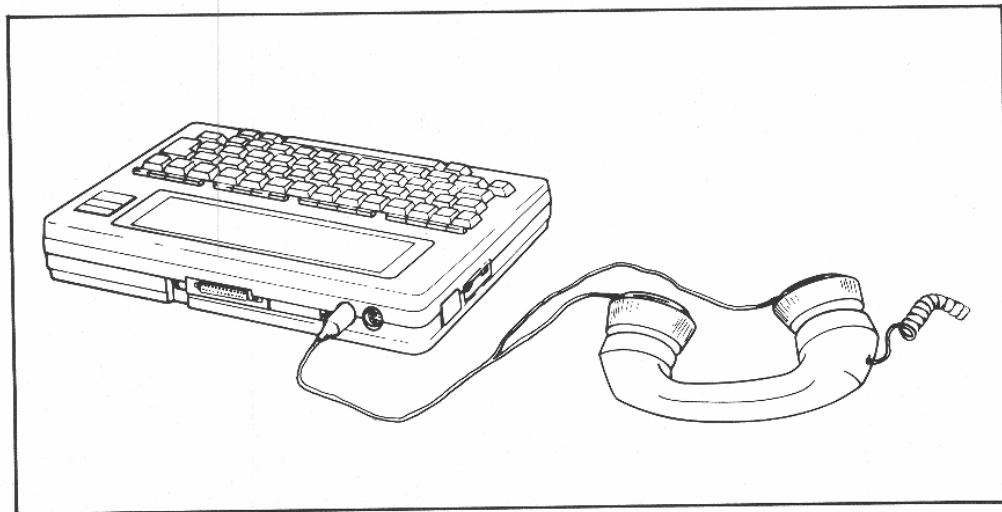


Figure 9-2. *Connecting the Model 100 to a telephone by the Acoustic Cups*

if you run out of memory during downloading, the Model 100 will not “lock up.” A message notifying you of the problem will be displayed, and the information will continue being displayed on the screen.

SETTING UP THE SOFTWARE

The next step is to set the computer's communications software so that it is the same as CompuServe's (that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length). To set the Model 100 so that it matches CompuServe, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem, when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP, move the Main Menu cursor to TELCOM, and press ENTER. Next press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

LOGGING ON TO COMPUSERVE

The Model 100 and CompuServe are now ready to "talk" to each other and the TELCOM: prompt should be displayed; press F2 for CALL. When the CALL prompt appears, type in the local CompuServe number. (If you're in an unfamiliar city, see CompuServe's national phone directory for its local number.) For instance, type

5551234

Next, without pressing ENTER, type greater-than and less-than signs after the number:

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep. When the cursor to the right of the last number dialed starts blinking, press ENTER. At this point, check to be sure you are in full duplex. If the screen displays HALF, press F4. (If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections. Also check the software status; that is, be sure that the screen displays M7I1E or 37I1E, depending on whether you're using a Modem Cable or Acoustic Cups. Then repeat the procedure.)

When the connection is completed, a special code will appear, followed by this message:

HOST NAME:

You should type

CIS ENTER

Next this message will appear:

USER ID:

Type in the ID number CompuServe assigned you when you subscribed, and press ENTER. For example,

USER ID: 70005,111 ENTER

After a brief pause, CompuServe will ask for your secret password.

PASSWORD:

Type in your password—carefully since this word won't be displayed on the screen—and press ENTER.

If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of the entire process should look something like this:

Telcom: Call 5551234<>

Calling 5551234

01MCI

HOST NAME: CIS

USER ID: 70005,111

PASSWORD:

BEGINNING THE CONFERENCE

Once you've logged on to CompuServe, you will be presented with the CompuServe main menu. (See Figure 9-3.) The ! is CompuServe's command prompt—the information service is waiting for you to type something in. Select option 3, Personal Computing, by typing 3 and pressing ENTER. CompuServe will then display a screen that looks something like that in Figure 9-4.

Select option 3, Communications, by typing 3 and pressing

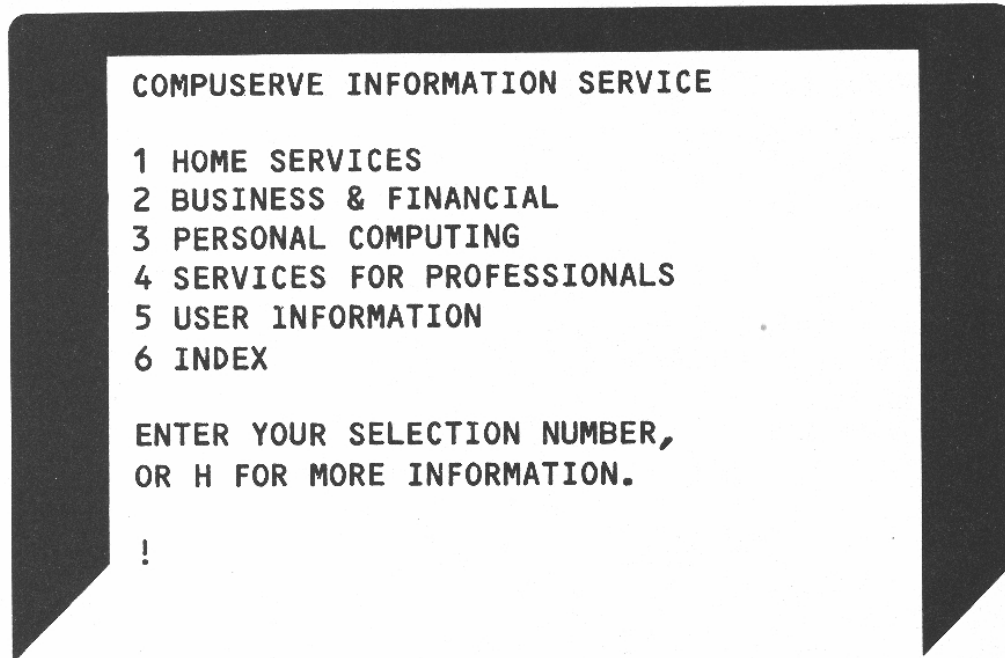


Figure 9-3. The CompuServe main menu

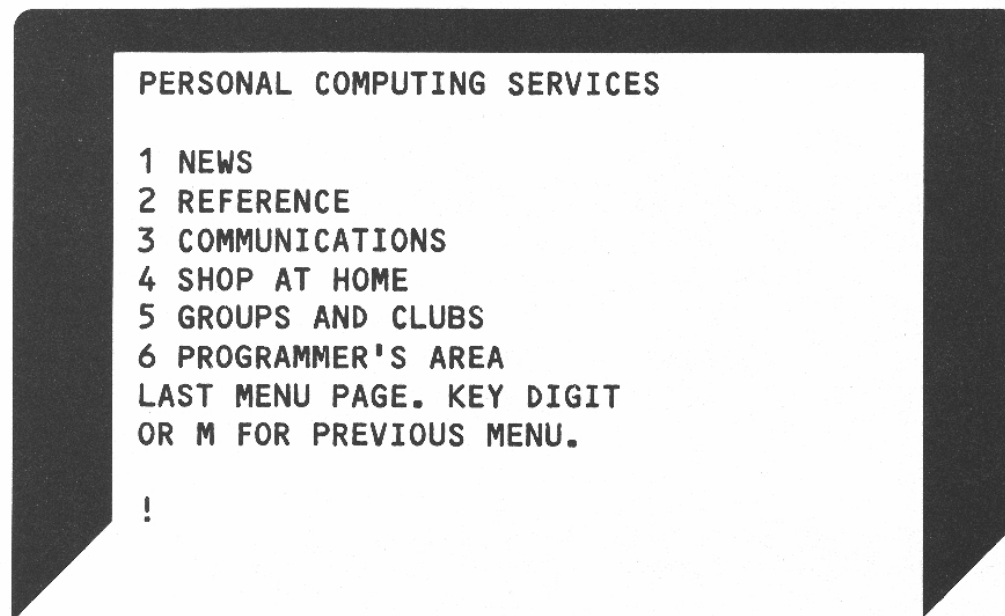


Figure 9-4. The Personal Computing menu

ENTER. A screen similar to that in Figure 9-5 will appear. Select option 2, CB Simulation, by typing 2 and pressing ENTER. CompuServe will then send you an introductory message about CB Simulation and provide you with the options shown in Figure 9-6. Select option 2, To Turn On Your CB Set.

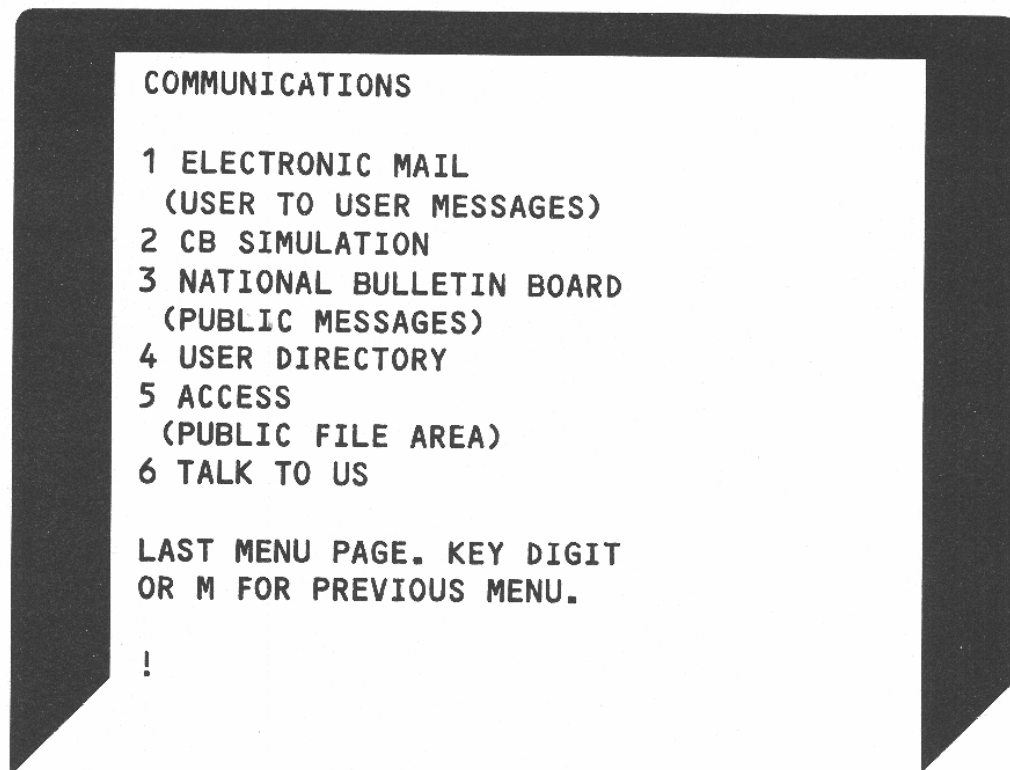


Figure 9-5. The Communications menu

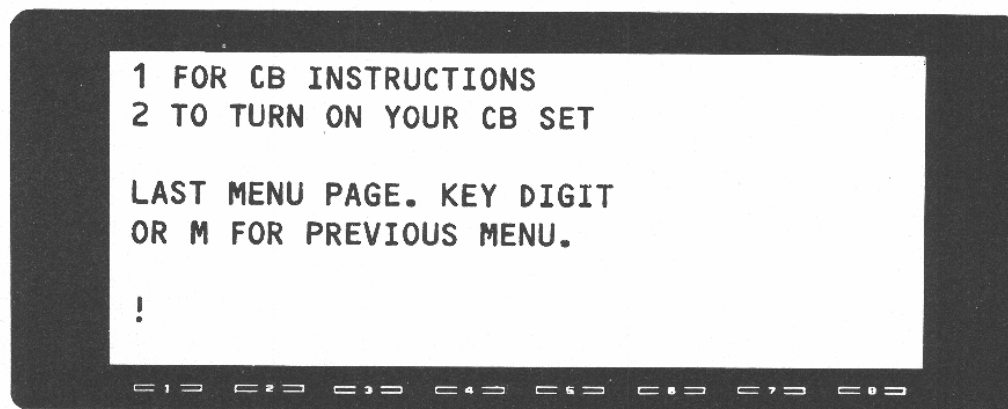


Figure 9-6. The CB Simulation menu

You are ready to start the conference. After a brief introductory message, the CB program will ask you

WHAT'S YOUR HANDLE?

Type in your name. Your name should be unique and distinguish

you from other conference participants; for instance, for Sue Campbell it would be

WHAT'S YOUR HANDLE? SUE C.

You will then be asked

WHICH CHANNEL:

Type in the CB channel on which you want to hold the conference. Remember, we suggest you use channels from 30 to 36, with the exception of channel 33. For instance,

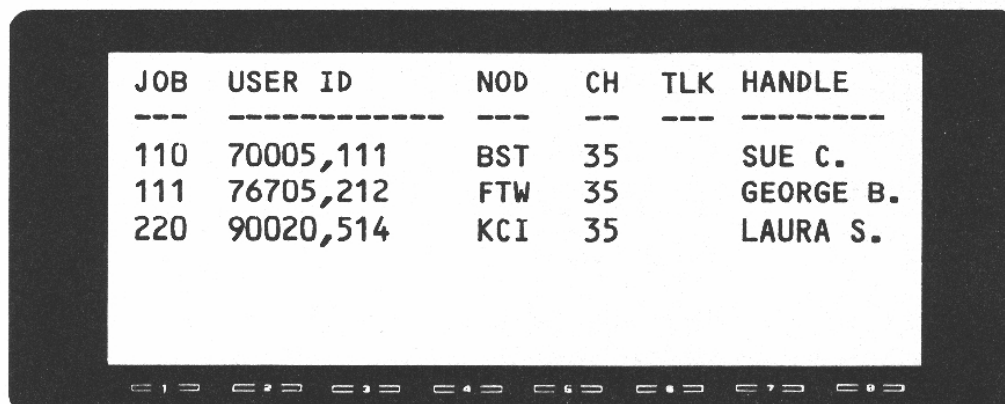
WHICH CHANNEL: 35

At this time, to confirm that all participants are on-line and ready to begin, the conference leader should type

/UST 35

A display similar to that in Figure 9-7 will appear. The headings in Figure 9-7 have the following explanations:

- **JOB.** The first column identifies the "job number" of each participant. Use this number when you want to hold private conversations within the conference. If you go off CB, then come back on, this number will change.
- **USER ID.** This is the ID number you typed in when you logged on to CompuServe.
- **NOD.** This column indicates the "node," or city, from which a person is talking.



JOB	USER ID	NOD	CH	TLK	HANDLE
---	-----	---	--	---	-----
110	70005,111	BST	35		SUE C.
111	76705,212	FTW	35		GEORGE B.
220	90020,514	KCI	35		LAURA S.

Figure 9-7. Display of conferee data

- CH. The channel being used will be listed in this column.
- TLK. If someone in the conference is holding a private conversation with someone, this column will have an asterisk in it.
- HANDLE. This column lists the "handle" (or name) of each conferee.

Once the conference leader has confirmed that all the participants are on-line, an "okay to start the conference" message should be given. For example, the leader might type in the following line:

ALL PARTICIPANTS ARE ACCOUNTED FOR. USE YOUR
SCRAMBLE CODE TO BEGIN THE CONFERENCE.

To use the scramble code word to start a closed conference, type the **/SCR** command followed by the secret password previously chosen:

/SCR *codeword* ENTER

(To "disable" the code word so that anyone on the channel can take part in the conference, simply type **/SCR** and press ENTER.)

If Sue Campbell had told everyone that the code word was SALES, all conference members would have to type

/SCR SALES ENTER

before they could take part in the conference—that is, before they could read what other people were typing or type to the conference themselves.

Once everyone has typed in the code word, the conference can begin. Participants can type on the Model 100 keyboard and read what others have typed.

CONVERSING PRIVATELY DURING A CONFERENCE

There may be times when two people need to "go off to the side" and talk without others "hearing" what they have to say (for example, two people might want to formulate a single proposal). To do this, one person must learn the other's JOB # (by typing **/UST**

channel ENTER or simply asking the other person what his or her JOB # is), then use the /TALK command. For instance, suppose Sue (JOB #110) wanted to talk to George (JOB #111). She would type in

/TALK 111 ENTER

The CB program would then send the message to George:

JOB 111 [70005,111] SUE C. IS NOW IN CONTACT
(USE ^P TO BREAK CONTACT)
>

Now, nothing that George or Sue types will be seen by anyone else.

When they've finished their discussion, either one of them can end the private connection by pressing the key combination

CTRL P

The Model 100 display will look something like this:

>^P
CONTACT BROKEN

They then rejoin the regular conference.

ENDING THE CONFERENCE

When the conference leader has decided that the discussion has come to an end, a simple statement can inform all participants:

THE CONFERENCE IS OVER. THANK YOU.

To exit the conference, type

/EXI ENTER

A message similar to that in Figure 9-8 will appear. You should type 6 ENTER to log off CompuServe.

UPLOADING AND DOWNLOADING

If, once you are in the conference, you need to "upload" information from your Model 100 RAM file to the conference, press F3, type in the file name as it appears on the Model 100 Main Menu,

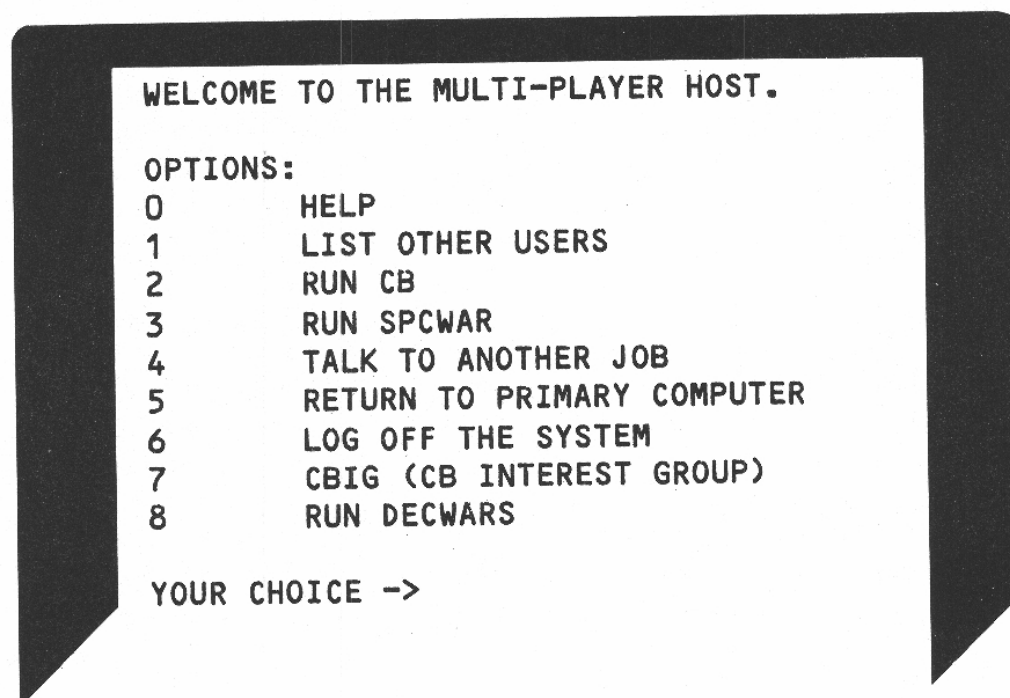


Figure 9-8. The Multi-Player Host menu

and press ENTER when prompted for WIDTH. Be sure to first notify other participants that you are about to send information of possible interest to them.

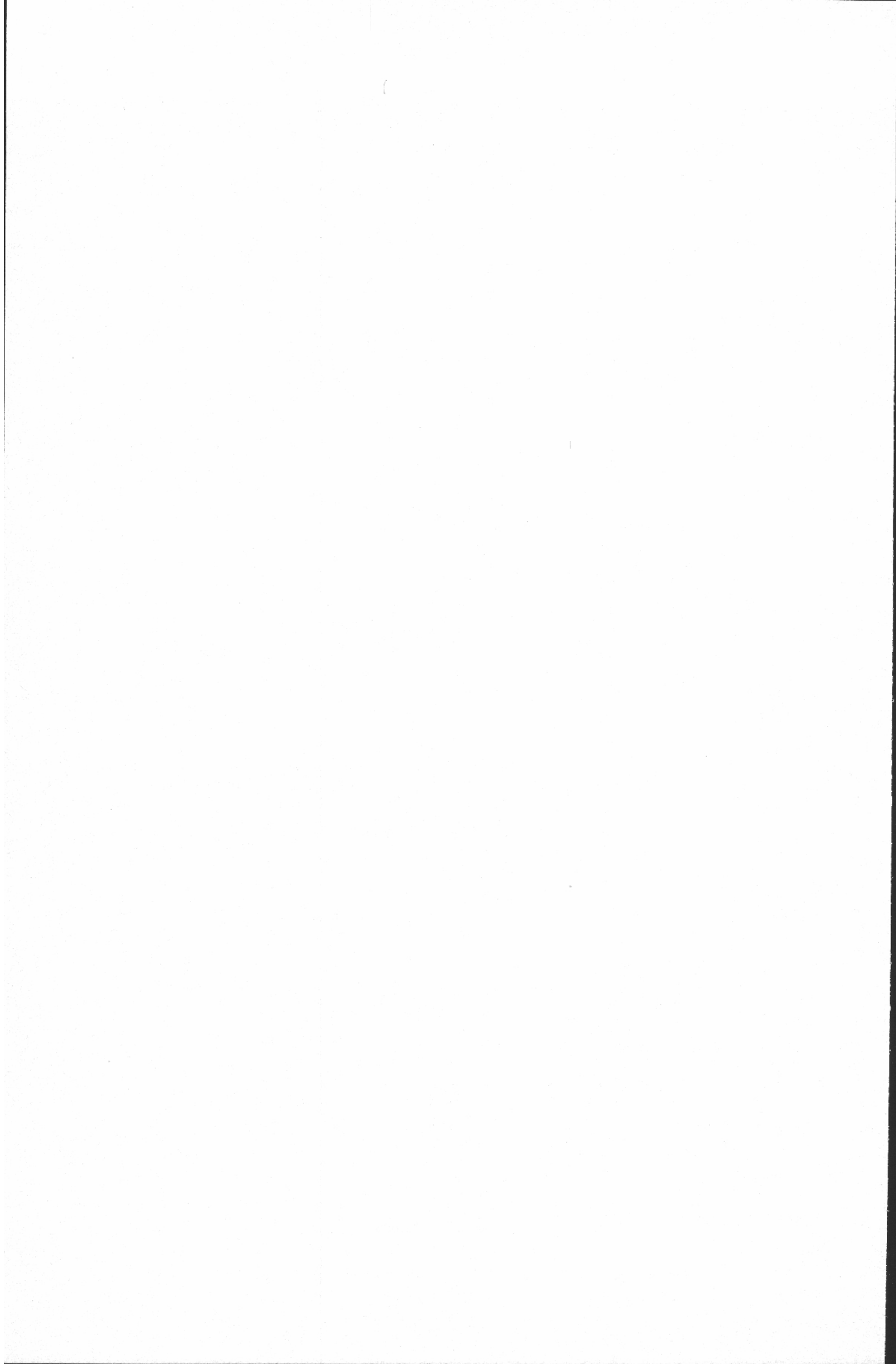
If you want to download information from another conferee, press F2. You'll be prompted for the file name you want to assign to the file. Type it in and press ENTER. The word DOWN above the F2 key will then go into reverse video and the information sent to your Model 100 will be downloaded into a TEXT file. When you've downloaded all the information you need, press F2 again; DOWN will return to normal video and the data transfer process will end.

OTHER SERVICES

CompuServe's CB Simulation isn't the only computer conference service available. One of the first (and most widely used) services is the Electronic Information Exchange System (EIES, pronounced "eyes"). You can find out more about EIES by writing

Computerized Conferencing and Communications Center
 323 High Street
 Newark, NJ 07102
 Phone: (201) 645-5211

The Source offers the PARTICIPATE teleconferencing system, which uses the best features of both the electronic bulletin board and electronic mail. See *The Source User's Guide* or contact The Source for more information.



PART

Using the Model 100 At Home



When Marvin and Pat Davis realized that the personal computer revolution was upon them, they decided they had better find out what it was all about. Their daughter was in second grade and their son in kindergarten in an elementary school full of microcomputers. They knew it wouldn't be long before their children would be asking them questions they couldn't answer. Besides, they were curious themselves.

Both Marvin and Pat had had introductory computer and data processing courses in college, but that had been years ago when a computer meant IBM and a roomful of equipment. They knew they didn't have the time, money, space, or need for anything like the large-scale equipment of old, so they began to investigate what type of computer they needed. To start with, they made a list of what they thought they needed in a home computer. It had to be

- Economical in price. Pat certainly didn't want to spend \$2000 on a home appliance that they might not use, and Marvin

knew that a \$65 computer wouldn't suit their needs. They decided that \$1000 was as much as they wanted to pay.

- Small and unobtrusive. They had never let their TV dominate the living room, and they certainly didn't want a computer to. They wanted to be able to put the computer out of sight when they weren't using it.
- Portable. One of the things Marvin liked best about their TV was that it was small and battery-powered. If there was too much noise in the living room, he could take it into the kitchen or bedroom to watch. He thought a computer should be the same. This meant that a battery-powered computer would be ideal. And if the kids eventually needed to use the computer for homework, they could take it into their rooms—if the computer was light enough.
- Easy to use. Since they knew they were computer novices, and they knew the kids would be using the computer, they wanted one that was easy to use. Since they knew also that their knowledge about computers would grow, they wanted the computer they bought to be powerful enough to keep up with them in two or three years.
- Supported by software. If they had learned one thing in their college computer courses, both Pat and Marvin knew that software for computers was expensive. Consequently, whatever computer they chose should have software included as part of their initial investment.

After listing these and other features they expected from a personal computer, Marvin and Pat chose the Model 100. It came closer to what they thought would fulfill their computer needs than anything else on the market.

In the next several chapters, we discuss how they used the Model 100 at home. If you think some of these programs could be used in a business office, you're right. That's the fundamental beauty of the Model 100—it can be used just about anywhere.

Loan Manager

10

Whether they're used for the purchase of a lawn mower or a new house, installment loans can sneak up on a household. Once the contract has been signed, the down payment has been made, and the payment book has arrived, the months of check writing can become (at best) monotonous and (at worst) expensive. And before you know it, you've paid \$15,000 for a \$10,000 car.

When Marvin and Pat Davis decided to buy a new dining room set, they knew they'd have to finance most of the cost. As they went from store to store, they took their Model 100 with them and used it for two things: (1) to calculate the total price and the payments for the items they were looking at, and (2) to record this information in memory, along with the names of the store and salesperson and a description of the item.

ABOUT THE LOAN MANAGER PROGRAM

In this chapter, we describe the program Marvin and Pat used to calculate the actual cost—that is, the selling price plus finance charges—of merchandise. Loan Manager is a general-purpose loan calculation program that will let you compare one actual price to another or one finance rate to another.

The program bases all calculations on the principal, interest rate, and length of time you want to finance an item you're buying. The program will then tell you the payment number, the remaining unpaid principal, the monthly payment amount, how much of the current payment is applied to the principal and how much to the interest, and finally the actual price of the item. Furthermore, all figures can be displayed on the Model 100 screen or on a printer.

CONNECTING THE HARDWARE

This program requires no special hardware, but you might want to use a printer. The program will run on an 8K Model 100.

SETTING UP THE SOFTWARE

Since Loan Manager is a BASIC program, move the Model 100 Main Menu cursor so that it is on the word BASIC and then press ENTER. Copyright information and the BASIC OK prompt will be displayed followed by a blinking cursor. You type in the program exactly as it is listed here. Don't forget to enter the line numbers at the beginning of each line and to press ENTER at the end of each line.

Once you have typed in the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "LOAN" ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100 (see the owner's manuals for your recorder and the Model 100 for details on setting the volume control). Simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Loan Manager program is loaded into memory, then type

CSAVE "LOAN" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as LOAN.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line containing the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, save what you have typed. When you're ready to continue typing the program, you must first LOAD the previously typed portion. You then type the rest, again saving it all under the same name.

```

10 '*** Loan Manager -- 1983 Copyright Sayre & Erickson
    ***
20 CLS: PRINT@ 4, "Welcome to Loan Manager"
30 PRINT
40 INPUT "How much does it cost";C
50 INPUT "How much will you pay down";D
60 A=0: P=C-D: Z=0: PRINT "Principal is";P
70 INPUT "How many months";M
80 INPUT "What is the interest rate";R
90 X=R/12: X=X/100
100 PRINT
110 INPUT "Print to Screen or Printer (S/P)";D$
120 T=1: FOR J=1 TO M
130 T=T*(1+X): NEXT J: T=1/T
140 T=1-T
150 K=P*X/T
160 K=INT(K*100+.5)/100
170 IF D$ = "S" OR D$= "s" THEN GOSUB 180 ELSE IF D$=
    "P" OR D$= "p" THEN GOSUB 330
180 CLS: PRINT "Pay.;" " Princ.;" " Monthly;" " Princ.;"
    Inter."
190 PRINT " #;" " Left;" " Pay.;" " Pay.;"
    Pay."
200 FOR Y=1TO M
210 IF A < 6 THEN 230
220 PRINT: INPUT " More? <Y>es or <N>o";A$: A=0:
    IF A$= "N" OR A$= "n" THEN GOSUB 300
230 Q=(INT(P*X*100+.5))/100
240 V=K-Q: P=P-V

```

```

250 Z=Z+K
260 IF P < K THEN K=P
270 GOSUB 310
280 IF Y = M THEN GOTO 470
290 A=A+1: NEXT Y
300 END
310 PRINT Y" ";: PRINT USING "#####.##";P;: PRINT
    USING "#####.##";K;: PRINT USING "#####.##";V;:
    PRINT USING "#####.##";Q
320 RETURN
330 LPRINT "Pay.;" " Princ.;" " Monthly;" " Princ.;" "
    Inter."
340 LPRINT " #;" " Left;" " Pay.;" " Pay.;" "
    Pay."
350 FOR Y=1 TO M
360 IF A < 60 GOTO 380
370 PRINT: INPUT " More? <Y>es or <N>o";A$: A=0:
    IF A$= "N" OR A$= "n" THEN GOSUB 440
380 Q=(INT(P*X*100+.5))/100
390 V=K-Q: P=P-V
400 IF P < K THEN K=P
410 GOSUB 450
420 IF Y=M THEN 490
430 A=A+1: NEXT Y
440 END
450 LPRINT Y" ";: LPRINT USING "#####.##";P;: LPRINT
    USING "#####.##";K;: LPRINT USING "#####.##";V;:
    LPRINT USING "#####.##";Q
460 RETURN
470 PRINT: PRINT "The actual cost of the item is $";Z+D
480 END
490 LPRINT: LPRINT "The actual cost of the item is
    $";Z+D
500 END

```

USING THE LOAN MANAGER PROGRAM

To use the Loan Manager program, press the space bar to position the Main Menu cursor on the word LOAN.BA. Press ENTER to start the program.

Typing In Finance Charge Information

Once you've pressed ENTER, the Model 100 screen will display the Loan Manager welcome message followed by the first question.

The program is asking you the total *selling price* of the item you're going to buy. Type in the amount you'll have to pay for the item. For instance, Marvin and Pat were looking at dining room furniture with a selling price of \$1,874.99.

How much does it cost? **1874.99** ENTER

The Loan Manager will then ask you how much you're going to pay as a *down payment*. Type in the amount and press ENTER. For instance, Marvin and Pat were going to put \$875.00 down.

How much will you pay down? **875** ENTER

The Loan Manager program calculates from what you've typed in and displays the principal that will be financed. In Marvin and Pat's case, this would be \$999.99.

Principal is 999.99

Next, the program asks the *length of time*, in months, for which you want to finance the item. If you're buying a house on a 30-year mortgage, be sure to multiply 30 years by 12 months and type in 360. Marvin and Pat wanted financing for only one year.

How many months? **12** ENTER

Finally you'll be asked what *interest rate* you are willing to pay or have to pay. Type in the interest rate. *Do not* include the percent (%) sign. For instance, Marvin typed

What is the interest rate? **13.3** ENTER

Displaying or Printing Out the Finance Schedule

As soon as you've typed in the interest rate, the Loan Manager program will ask you where you want the finance schedule printed—on the Model 100 screen or on a printer. Type **S** or **P** and press ENTER to specify where you want the information printed. (If you type **P** and the printer is off-line or not connected to the Model 100, the computer will “lock up.”)

Whether on screen or printout, the information is displayed in

the following five-column format:

- Column 1, Pay. #, lists the successive payment numbers.
- Column 2, Princ. Left, shows the total principal remaining to be paid after the current payment.
- Column 3, Monthly Pay., displays the monthly payment.
- Column 4, Princ. Pay., tells you how much of the current payment goes to reducing the principal.
- Column 5, Inter. Pay., shows how much of the current payment is applied to the interest.

When Marvin typed in the finance information for the dining room set and specified that the schedule be printed on the screen, the display looked like that in Figure 10-1. The top lines of the display will "scroll" off the screen to make room for the six rows of figures and the MORE prompt. If you choose to have the listings printed on the screen, the MORE prompt appears after every six lines. You can type Y and press ENTER to see more information, or you can type N and press ENTER to end the program and return to the BASIC OK prompt.

If you use the printer, 60 lines will be printed before the MORE prompt appears on the Model 100 display. This is because a standard 11-inch piece of paper has 66 lines. You should position the paper to a point one-half inch below the top edge of the paper when you're ready to start printing. Printing will then stop one-

Pay #	Princ. Left	Monthly Pay.	Princ. Pay.	Inter. Pay.
1	921.61	89.46	73.38	11.08
2	843.36	89.46	79.25	10.21
3	762.24	89.46	80.12	9.34
4	681.23	89.46	81.01	8.45
5	599.32	89.46	81.91	7.55
6	516.50	89.46	82.82	6.64

More? <Y>es or <N>o?

Figure 10-1. Calculation display with MORE prompt

half inch above the bottom edge. When it stops, insert a new sheet if you're using single sheets of paper in the printer, or advance the paper manually if you're using fan-fold paper, then type Y and press ENTER to continue printing.

When all finance calculations have been displayed or printed for the number of months you specified, the actual cost—selling price plus all finance charges—will be displayed.

The actual cost of the item is \$ _____

The actual cost of Marvin and Pat's dining room set turned out to be \$1947.50 on a selling price of \$1874.99.

The actual cost of the item is \$1947.50.

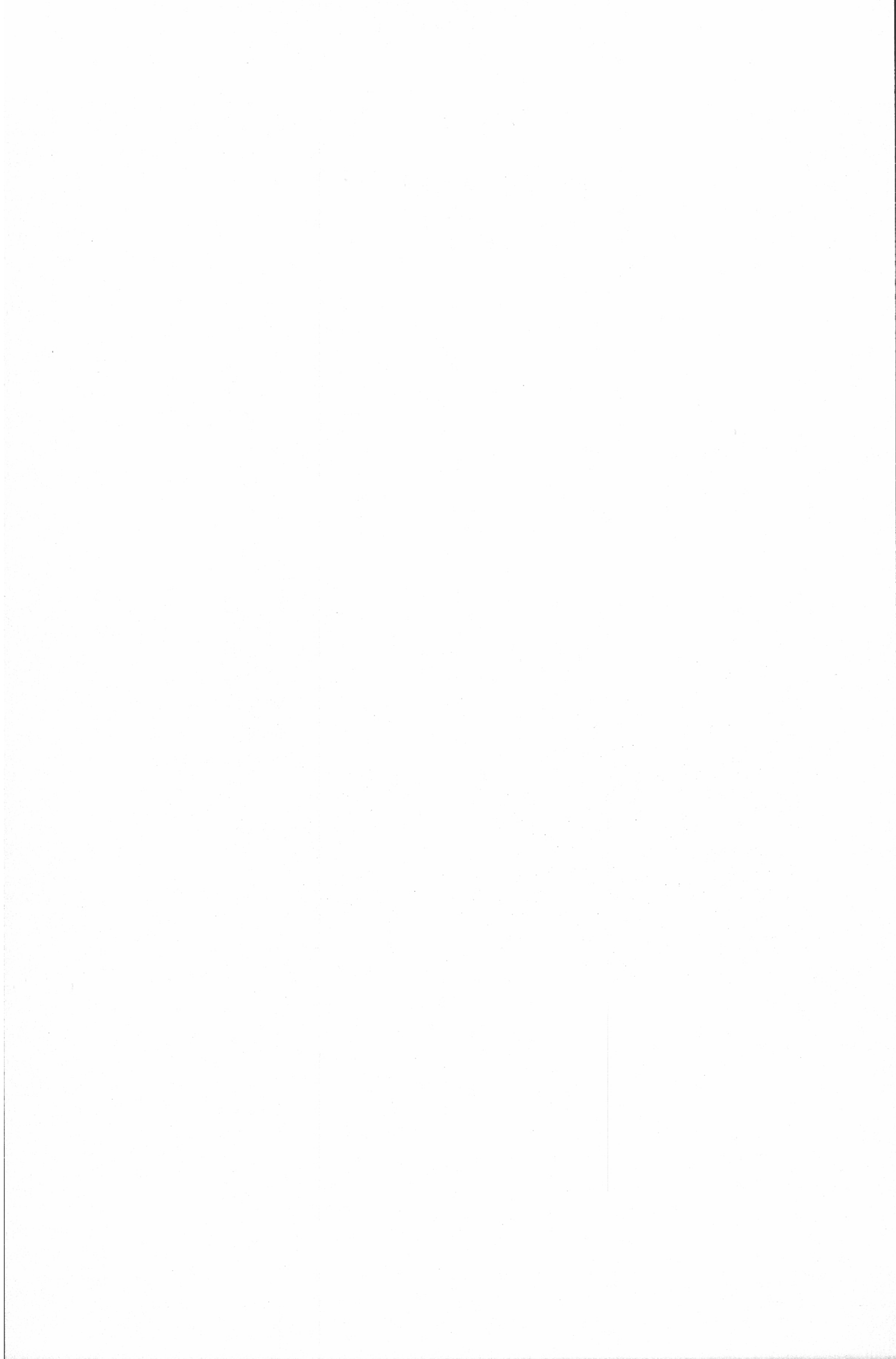
OTHER ACTIVITIES

If you're using fan-fold paper in your printer, you can easily modify the Loan Manager program for continuous printing. To start, disable line 360 by inserting a REMark statement directly after the line number. Then insert three LPRINT: statements after the line number in 350 and in line 390. You might also modify the program so that after the actual cost of the item, the amount of interest paid is displayed. Just add this program line:

```
475 W=(Z+D): PRINT "Total interest paid is";W-C
```

If you want the same information printed out on the printer, add this line:

```
495 W=(Z+D): LPRINT: LPRINT "Total interest paid is";W-C
```



Managing Home Expenses

11

Between inflation and income taxes, Marvin and Pat Davis knew they needed an easy yet reliable way of recording household expenses. With both of them writing checks and paying cash, a centralized recording system seemed like the only way they would be able to come up with the right figures at the end of the month. Once they got their Model 100, they decided that it could be the centralized record keeper they needed.

The Model 100 didn't change the way they paid their bills, but at the end of the day, they typed in the day's expenses using the Home Expense Manager program in this chapter. It was then an easy matter to check or compare all expenses in a particular category (utilities, transportation, and the like) or in a specific time period (such as week to week or month to month).

At the end of every month, Marvin could connect his Model 100 to a printer and get a category-by-category statement of ex-

penses—or, if he wanted, a day-by-day statement. He would then save the data on cassette tape and start over again on the new month. This way, for instance, he could compare his auto-upkeep costs for September 1983 with the same expenses for September 1984.

The Home Expense Manager program is also an excellent checkbook balancer. Not only will it keep a running total as you write checks and make deposits, it will automatically record all entered transactions in a data file—something a calculator can't do.

ABOUT THE HOME EXPENSE MANAGER PROGRAM

The Home Expense Manager is a powerful and easy-to-use program that helps you manage home expenses. As you enter expenses, the program automatically arranges ("sorts") them by type, date, method of payment, or just about any other category you choose to identify. Once entered, you can look at any or all expenses by date, account number, or specific topic. For example, you can get a list of all food expenses or all payments made by check. Home Expense Manager even keeps a running total of how much you've spent.

CONNECTING THE HARDWARE

To use this program, your Model 100 will need at least 16K of RAM. Also remember that the size of the "file" that holds your expense information is limited by the amount of free memory in the Model 100. When you turn the computer's power on, look in the lower-right corner of the display and check the memory. If the number is relatively low (below 500, for instance), either kill some files or programs you don't need or save them onto cassette tape and then delete them from the Model 100's Main Menu.

Since the program provides for printouts of expenses, you can connect the Model 100 to a parallel printer for printed copies. To do this, you'll need the special Model 100 Parallel Printer Cable that connects the computer to any Radio Shack parallel printer as well as many other printers.

Before making any connections between a printer and the Model 100, be sure that all system components are turned *off*.

When connecting the printer cable to the computer, be sure the cable exits down from the connector.

When turning the power on to the system, power up the printer first, and then turn on the Model 100.

SETTING UP THE SOFTWARE

Because Home Expense Manager is a BASIC program, you'll need to move the Model 100's Main Menu cursor to the word BASIC and press ENTER. BASIC will display copyright information and the OK prompt, followed by a blinking cursor. Type in the program exactly as it is listed on the following pages.

Since the program is fairly long, we've divided it into shorter sections called modules. So you can better understand how Home Expense Manager works, you'll find a module-by-module description following the program listing. If you're a programmer, or if you want to learn more about programming, you might want to read these descriptions. Understanding how the program works will let you customize it for your own particular needs. If you don't care how the program works—you just want it to work—you can skip the descriptions.

```

10 ' *** Home Expense Manager -- 1983 Copyright Sayre &
    Erickson ***
20 'Module 1 -- Main Driver
30 CLEAR 500
40 MAXFILES=2: DEFINT A-Z
50 CR$=CHR$(13): RV$=CHR$(27) + "p": NV$=CHR$(27) + "q"
60 KEY1,"N": KEY2,"S": KEY3,"": KEY4,"": KEY5,"":
    KEY6,"": KEY7,"": KEY8,"M"
70 CLS: PRINT NV$;
80 PRINT@ 5, "Welcome to Home Expense Manager"
90 PRINT@ 280, "Next Select";
100 PRINT@ 315, "Menu";
110 OP$(0)= " Enter Home Expenses ": PP(0)=90
120 OP$(1)= " Print Home Expenses ": PP(1)=130
130 R=0
140 FOR I=0 TO 1: PRINT@ PP(I),NV$,OP$(I);: NEXT I
150 PRINT@ PP(R),RV$,OP$(R);NV$;
160 A$=INKEY$: IF A$="" THEN 160
170 IF A$="N" THEN R=(R+1)MOD2: GOTO 140
180 IF A$="M" THEN CALL 23164,0,23366: CALL 27795: MENU
190 IF A$ <> "S" THEN BEEP: GOTO 140

```

```

200 ON R+1 GOSUB 220,650
210 GOTO 60
220 'Module 2 -- Enter a home expense
230 ON ERROR GOTO 610
240 CLS: PRINT NV$;
250 PRINT "Bill Category #:";
260 PRINT@ 25, "Date: _/_/_" ;
270 PRINT@ 40, "Amount: $ _ _ . _ _ " ;
280 PRINT@ 62, "Paid With: _ _ _ " ;
290 PRINT@ 80, "Check #: _ _ " ;
300 PRINT@ 120, "Notes: " + STRING$(33, "_");
310 PRINT@ 280, "Rcrd Cncl";
320 BF$=STRING$(62, " ")
330 PP(0)=16: CC(0)=3
340 PP(1)=31: CC(1)=1
350 PP(2)=34: CC(2)=1
360 PP(3)=37: CC(3)=1
370 PP(4)=49: CC(4)=4
380 PP(5)=55: CC(5)=1
390 PP(6)=73: CC(6)=5
400 PP(7)=88: CC(7)=5
410 PP(8)=127: CC(8)=32
420 CH=0: WD=0: BP=0: MW=8: MB=61
430 GOSUB 1880
440 IF C$=CHR$(2) THEN PRINT@ 295,NV$; "Operation
    cancelled!";: GOTO 590
450 OPEN "HOMEXP" FOR INPUT AS 1
460 OPEN "TMPEXP" FOR OUTPUT AS 2
470 S1$=MID$(BF$,9,2) + MID$(BF$,5,4) + MID$(BF$,1,4)
480 IF EOF(1) THEN PRINT#2,BF$;: GOTO 560
490 IP$=INPUT$(62,1)
500 S2$=MID$(IP$,9,2) + MID$(IP$,5,4) + MID$(IP$,1,4)
510 IF S1$ < S2$ THEN PRINT#2,BF$;: PRINT #2,IP$;ELSE
    PRINT#2,IP$;: GOTO 480
520 IF EOF(1) GOTO 560
530 IP$=INPUT$(62,1)
540 PRINT#2,IP$;
550 GOTO 520
560 CLOSE 1,2
570 KILL "HOMEXP.DO"
580 NAME "TMPEXP.DO" AS "HOMEXP.DO"
590 FOR I=1 TO 1000: NEXT I
600 RETURN
610 IF ERR <> 52 THEN PRINT@ 240, "Error #";ERR;" in
    line #";ERL: STOP
620 OPEN "HOMEXP" FOR OUTPUT AS 1

```



```

630 CLOSE 1
640 RESUME
650 'Module 3 -- Display or print home expenses
660 ON ERROR GOTO 610
670 CLS: PRINT NV$;
680 PRINT@ 0, "Starting with Bill Category # ____";
690 PRINT@ 40, "Ending with Bill Category # ____";
700 PRINT@ 80, "Starting Date: __/__/__";
710 PRINT@ 120, "Ending Date: __/__/__";
720 PRINT@ 160, "Specific Topic(s): " + STRING$(21, " ");
730 PRINT@ 200, "Print to Screen or Printer (S/P): _";
740 PRINT@ 280, "Print Cncl";
750 PP(0)=30: CC(0)=3
760 PP(1)=68: CC(1)=3
770 PP(2)=95: CC(2)=1
780 PP(3)=98: CC(3)=1
790 PP(4)=101: CC(4)=1
800 PP(5)=133: CC(5)=1
810 PP(6)=136: CC(6)=1
820 PP(7)=139: CC(7)=1
830 PP(8)=179: CC(8)=20
840 PP(9)=234: CC(10)=0
850 CH=0: WD=0: BP=0: MW=9: MB=41
860 BF$=STRING$(42, " ")
870 GOSUB 1880
880 IF C$=CHR$(2) THEN PRINT@ 300, "Operation
      cancelled!";: GOTO 1180
890 SD$=MID$(BF$,13,2) + MID$(BF$,9,4)
900 ED$=MID$(BF$,19,2) + MID$(BF$,15,4)
910 IF ED$="      " THEN ED$="991231"
920 SA$=MID$(BF$,1,4)
930 EA$=MID$(BF$,5,4)
940 IF EA$="      " THEN EA$="ZZZZ"
950 TC=0
960 TP$(1)="": TP$(2)=" "
970 PT=INSTR(13,BF$,CHR$(255))
980 IF PT=0 THEN 1130
990 TP$(1)=MID$(BF$,21,PT-21)
1000 FOR I=1 TO LEN(TP$(1))
1010 IF MID$(TP$(1),I,1) < "a" OR MID$(TP$(1),I,1) >
      "z" THEN 1030
1020 MID$(TP$(1),I,1)=CHR$(ASC(MID$(TP$(1),I,1))-32)
1030 NEXT I
1040 NP=PT+1: TC=1
1050 PT=INSTR(NP,BF$,CHR$(255))
1060 IF PT=0 THEN 1130

```

```

1070 TP$(2)=MID$(BF$,NP,PT-NP)
1080 FOR I=1 TO LEN(TP$(2))
1090 IF MID$(TP$(2),I,1) < "a" OR MID$(TP$(2),I,1) >
    "z" THEN 1110
1100 MID$(TP$(2),I,1)=CHR$(ASC(MID$(TP$(2),I,1))-32)
1110 NEXT I
1120 TC=2
1130 OPEN "HOMEXP" FOR INPUT AS 1
1140 IF MID$(BF$,42,1)="P" OR MID$(BF$,42,1)="p" THEN
    GOSUB 1470 ELSE GOSUB 1190
1150 PRINT@ 300,NV$; "End of file";
1160 FOR I=1 TO 1000: NEXT I
1170 CLOSE
1180 RETURN
1190 'Module 3-A -- Display home expenses on the screen
1200 KEY1,"N": KEY2,"Q": KEY8,""
1210 CLS: PRINT NV$;
1220 PRINT@ 0, "Bill Category #";
1230 PRINT@ 25, "Date:";
1240 PRINT@ 40, "Amount:$";
1250 PRINT@ 62, "Paid With:";
1260 PRINT@ 80, "Check #:";
1270 PRINT@ 120, "Notes: ";
1280 PRINT@ 200, "Running Total:$"
1290 PRINT@ 280, "Next Quit";
1300 TT!=0
1310 GOSUB 1710
1320 IF PF=0 GOTO 1450
1330 PRINT@ 16,MID$(BF$,1,4);
1340 PRINT@ 31,MID$(BF$,5,2) + "/" + MID$(BF$,7,2) +
    "/" + MID$(BF$,9,2);
1350 AM!=VAL(MID$(BF$,11,7))/100
1360 TT!=TT!+AM!
1370 PRINT@ 49,USING"#####.##";AM!;
1380 PRINT@ 73,MID$(BF$,18,6);
1390 PRINT@ 87,MID$(BF$,24,6);
1400 PRINT@ 127,MID$(BF$,30,33);
1410 PRINT@ 215,USING"#####.##";TT!
1420 A$=INKEY$
1430 IF A$="N" THEN 1310
1440 IF A$ <> "Q" THEN 1420
1450 CLOSE 1
1460 RETURN
1470 'Module 3-B -- Display home expenses on the
    printer
1480 OPEN "LPT:" FOR OUTPUT AS 2

```

```

1490 TT!=0:OD$=""
1500 PRINT#2,CR$;CR$;TAB(30); "Home Expense
    Report";CR$;CR$;CR$;
1510 PRINT: PRINT#2,TAB(10); "Bill    Paid"
1520 PRINT#2," Date    Category    With    Check#    Notes";
    TAB(29);"Amount    Total"
1530 LC=7
1540 GOSUB 1710
1550 IF PF=0 GOTO 1700
1560 ND$=MID$(BF$,5,2) + "/" + MID$(BF$,7,2) + "/" +
    MID$(BF$,9,2)
1570 IF ND$=OD$ THEN ND$="          " ELSE OD$=ND$:
    LC=LC+1: PRINT#2,""
1580 PRINT#2,ND$+" ";
1590 PRINT#2,MID$(BF$,1,4)+" ";
1600 PRINT#2,MID$(BF$,18,6);" ";
1610 PRINT#2,MID$(BF$,24,6);" ";
1620 PRINT#2,MID$(BF$,30,33);
1630 AM!=VAL(MID$(BF$,11,7))/100
1640 TT!=TT!+AM!
1650 PRINT#2,USING"#####.##";AM!;
1660 PRINT#2," ";
1670 PRINT#2,USING"#####.##";TT!
1680 LC=LC+1
1690 IF LC < 60 GOTO 1540 ELSE GOTO 1500
1700 RETURN
1710 'Module 3-C -- Validate input
1720 IF EOF(1) THEN PF=0: GOTO 1870
1730 BF$=INPUT$(62,1): PF=1
1740 IF MID$(BF$,1,4) < SA$ OR MID$(BF$,1,4) > EA$ GOTO
    1710
1750 ID$=MID$(BF$,9,2) + MID$(BF$,5,4)
1760 IF ID$ < SD$ OR ID$ > ED$ GOTO 1710
1770 IF TC=0 GOTO 1870
1780 TB$=BF$
1790 FOR I=11 TO 55
1800 LC$=MID$(TB$,I,1)
1810 IF LC$ < "a" OR TC$ > "z" THEN 1830
1820 MID$(TB$,I,1)=CHR$(ASC(LC$)-32)
1830 NEXT I
1840 FOR I=1 TO TC
1850 IF INSTR(1,TB$,TP$(I))=0 THEN GOTO 1710
1860 NEXT I
1870 RETURN
1880 'Module 4 -- Keyboard input routine
1890 KEY1,CHR$(1): KEY2,CHR$(2): KEY8,""

```

```

1900 AS$=MID$(BF$,BP+1,1)
1910 IF AS$=" " THEN AS$=" "
1920 PRINT@ PP(WD) + CH, RV$,AS$;
1930 C$=INKEY$: IF C$="" THEN 1930
1940 IF C$=CHR$(28) THEN GOSUB 2100
1950 IF C$=CHR$(29) THEN GOSUB 2020
1960 IF C$ > CHR$(31) THEN GOSUB 2300
1970 IF C$=CHR$(8) THEN GOSUB 2410
1980 IF C$=CHR$(27) THEN GOSUB 2180
1990 IF C$=CHR$(13) THEN GOSUB 2240
2000 IF C$=CHR$(1) OR C$=CHR$(2) THEN RETURN
2010 GOTO 1900
2020 'Module 4-A -- Left arrow processing
2030 PRINT@ PP(WD)+CH,NV$,AS$;
2040 CH=CH-1: BP=BP-1
2050 IF CH >=0 THEN GOTO 2090
2060 WD=WD-1
2070 IF WD < 0 THEN WD=MW: BP=MB
2080 CH=CC(WD)
2090 RETURN
2100 'Module 4-B -- Right arrow processing
2110 PRINT@ PP(WD)+CH,NV$,AS$;
2120 CH=CH+1: BP=BP+1
2130 IF CH <= CC(WD) GOTO 2170
2140 WD=WD+1
2150 IF WD > MW THEN WD=0: BP=0
2160 CH=0
2170 RETURN
2180 'Module 4-C -- Escape key processing
2190 BP=BP-CH
2200 CH=0
2210 MID$(BF$,BP+1,CC(WD)+1)= STRING$(CC(WD)+1," ")
2220 PRINT@ PP(WD)+CH,NV$; STRING$(CC(WD)+1,"_")
2230 RETURN
2240 'Module 4-D -- Enter key processing
2250 PRINT@ PP(WD)+CH,NV$,AS$;
2260 BP=BP+(CC(WD)-CH)+1: WD=WD+1
2270 IF WD > MW THEN WD=0: BP=0
2280 CH=0
2290 RETURN
2300 'Module 4-E -- Printable letter processing
2310 MID$(BF$,BP+1,1)=C$
2320 BP=BP+1
2330 IF C$=" " THEN C$=" "
2340 PRINT@ PP(WD)+CH,NV$,C$;
2350 CH=CH+1

```

```

2360 IF CH <= CC(WD) GOTO 2400
2370 WD=WD+1
2380 IF WD > MW THEN WD=0: BP=0
2390 CH=0
2400 RETURN
2410 'Module 4-F -- Backspace processing
2420 PRINT@ PP(WD)+CH,NV$;AS$;
2430 BP=BP-1
2440 CH=CH-1
2450 IF CH >= 0 GOTO 2490
2460 WD=WD-1
2470 IF WD < 0 THEN WD=MW: BP=MB
2480 CH=CC(WD)
2490 MID$(BF$,BP+1,1)=" "
2500 RETURN

```

Once you have typed in the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "HOMEXP" ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100 (see the owner's manuals for your recorder and the Model 100 for details on setting the volume control). Simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Home Expense program is loaded into memory, and then type

CSAVE "HOMEXP" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as HOMEXP.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line containing the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, save what you have typed. When you're ready to continue typing the program, you must first load the previously typed portion. You then type the rest, again saving it all under the same name.

How Home Expense Manager Works

The next several sections describe how each module of the Home Expense Manager works.

Module 1: Main Driver Program lines 10 through 210 make up the initialization section and main driver routine. This section defines the function keys, sets up the normal/reverse video functions, and limits the maximum file count. It also displays the Home Expense menu and jumps to an appropriate subroutine, determined by what you type in. If you select the Menu option by pressing F8, the program resets the function key definitions before returning to the Model 100 Main Menu.

Module 2: Enter a Home Expense This subroutine, lines 220 through 640, lets you enter an expense into the Expense file. For this data entry, the subroutine calls the Keyboard Input routine (Module 4), which inputs characters one at a time, stores them in a buffer, and displays them on the screen.

After you enter the data, the subroutine reads in the HOMEXP.DO file record by record. It then compares the date and account number of the newly entered record with those of the record just read. If the new record has an earlier date and a lower account number than those of the record just read in, the subroutine writes the new record to the HOMEXP.DO file before writing the old record into the file. If the date of the new record is later and the account number higher than those of the record just read in, the routine writes only the old record to the HOMEXP.DO file. (In case of ties, the new record is assumed to have the later date and higher account number.)

The routine copies the old records straight to the TMPEXP.DO file without comparison. When the subroutine has completed the copy and insertion process, it deletes the old expense file,

HOMEXP.DO, and the former temporary file, TMPEXP.DO, is renamed HOMEXP.DO.

If the expense file HOMEXP.DO does not exist, the subroutine first creates it as a null file and then proceeds as just described. The subroutine does no error checking on the data; you are responsible for inputting numbers when required.

Module 3: Display or Print Out Home Expenses This routine, lines 650 to 1180, lets you display on the screen or print out any or all of the HOMEXP.DO file. You may specify a starting date, ending date, starting account number, ending account number, two special topics, and whether you want the output to be displayed on the screen or on the printer. Unless you specify otherwise, the routine starts with the earliest date and lowest account number, finishes with the latest date and highest account number, searches for no special topics, and displays the data on the screen.

To specify one or two special topics, you must type them onto the TOPICS line and terminate each string with an ASCII 255 (you do so by pressing SHIFT GRAPH C simultaneously). You can enter these strings and any other ASCII characters in either uppercase or lowercase letters, with the exception of ASCII 255. The subroutine converts any entered lowercase letters in a string to uppercase, and does the same when it inputs data records before comparing strings.

Once you've selected PRINT, the subroutine calls one of two routines that send the data to the printer or the screen.

If the HOMEXP.DO file does not exist, the subroutine creates it as a null file and then proceeds as normal. (In this case, since the file is empty, the subroutine returns immediately to the Home Expense master menu.)

Module 3-A: Display Home Expenses on the Screen This subroutine, lines 1190 through 1460, displays the requested expense data on the Model 100 screen. It calls on a separate subroutine (Module 3-C) to decide whether a given record in HOMEXP.DO meets your specified criteria for listing. That subroutine returns either when it has a valid record (PF=1), or when it has reached the end of the file (PF=0).

The subroutine then displays the previously stored data, one record at a time, along with the running total for all displayed

record expenses. To see the next record, you should press F1. To quit before the file has finished, press F2.

Module 3-B: Print Home Expenses on a Printer This subroutine, lines 1470 to 1700, formats the data in HOMEXP.DO into an 80-column printer format. It calls on another subroutine (Module 3-C) to decide whether a given record meets your specified criteria. That subroutine returns a value of 1 in the print flag, PF, if the input buffer BF\$ contains a valid record. If PF contains a 0, the subroutine encountered the end of the file, with no more records to print.

This subroutine separates each day's expenses from the next by a blank line. If the HOMEXP.DO file contains enough records, it will issue a form feed, reprint the headers, and start printing on the next page. Along with the amount of each expense, the subroutine prints out a running total of all printed records.

Module 3-C: Validate Input This subroutine, lines 1710 through 1870, reads in records from the HOMEXP.DO file. It then compares each record's contents against the criteria you specified. If a record meets the requirements (that is, the date is in the correct range or there is a match on any of the specified topics), the subroutine sets the print flag, PF, equal to 1 and returns to the calling routine (either Module 3-A or 3-B).

If a record doesn't meet the requirements, the subroutine continues to read in new records until it either finds a valid record or it reaches the end of the HOMEXP.DO file. When the routine reaches the end of a file with all valid records printed, it sets the PF flag equal to 0 and returns to the calling routine.

Module 4: Keyboard Input Routine This subroutine, lines 1880 through 2010, controls data entry for all the other subroutines of the program. When you type an entry, this routine expects that the calling program has defined a buffer, BF\$, which is MB+1 characters long. In addition, for each substring that makes up BF\$, it expects a character count (the substring's length - 1) for each word, or substring CC(n), as well as a starting print position, PP(n). It also expects that there are MW+1 total words in BF\$.

Each time you press a key, the subroutine analyzes it and takes appropriate action. It echoes most characters as they are, except for spaces, which it echoes as underlining. The subroutine uses its own cursor, which is the reverse video version of the character in the buffer BF\$ that the buffer pointer BP points to.

To exit the routine, you must press F1, which is defined as an ASCII 1 and which signals the calling party that the data is good, or F2, which is defined as an ASCII 2 and which signals the calling party that the data should be ignored. Other control keys that the subroutine accepts are ENTER, BKSP, ESC, ←, and →. Any other control keys are ignored.

Module 4-A: Left Arrow Processing This subroutine, lines 2020 through 2080, processes a left arrow input so that pressing the ← key moves the cursor one space to the left of its current position, updating the current print position and buffer pointer. If pressing moves the cursor to the last letter of the previous word, the word count is updated, as are the buffer pointer and print position. If the ← key is pressed when the cursor is on the first word of the screen, the subroutine “wraps around” to the last position of the last word on the screen.

Module 4-B: Right Arrow Processing This subroutine, lines 2100 through 2170, processes a right arrow input so that pressing the → key moves the cursor one space to the right of its current position, updating the current print position and buffer pointer. If pressing moves the cursor to a new word, the word count is updated, as are the print position and the buffer pointer. If the cursor is on the last word on the screen and the → key is pressed, the cursor and pointers “wrap around” to the beginning of the first word.

Module 4-C: ESCAPE Key Processing This subroutine, lines 2180 through 2230, processes the pressing of the ESC (escape) key. It resets the current print position to the start of the current word, updates the buffer pointer, and erases the current word, both on the screen and in the buffer.

Module 4-D: ENTER Key Processing This subroutine, lines 2240 to 2290, processes the pressing of the ENTER key. It updates

the cursor print position to the start of the next word and updates the buffer pointer. If the cursor is on the last word on the screen and ENTER is pressed, the subroutine "wraps around" to the first word on the screen.

Module 4-E: Printable Letter Processing This subroutine, lines 2300 through 2400, processes the pressing of a printable character (any character higher than ASCII 31). It echoes the character at the current print position, moves the character into the buffer, and then changes the current print position by one increment. If this involves moving to a new word, it updates the word count also.

All characters are echoed as is, except the space character (ASCII 32), which is echoed as an underline (although it is stored in the buffer as a space).

Module 4-F: Backspace Processing This subroutine, lines 2410 to the end of the program, processes the pressing of the BKSP (backspace) key. It moves the cursor to the previous print position, erasing the previous character from the screen and from the buffer. It updates the current print position and buffer pointer and, if necessary, the word count.

USING HOME EXPENSE MANAGER

When you've typed in and saved the Home Expense Manager program (in RAM and on cassette tape), return to the Model 100's Main Menu. You'll see HOMEXP.BA listed on the menu. Press the space bar to position the cursor on the word HOMEXP.BA and press ENTER to start the program.

Selecting a Home Expense Option

The Home Expense Manager menu will appear on your screen. (See Figure 11-1.) Note that the words ENTER HOME EXPENSES are displayed in reverse video because the cursor is on them. To move the cursor from one option to the other, press F1 (labeled NEXT on the screen). As you press F1, the other option

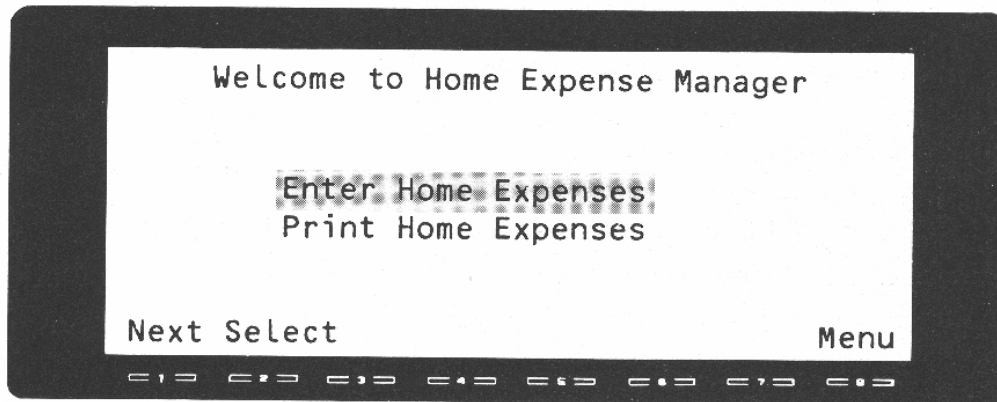


Figure 11-1. Home Expense Manager menu

appears in reverse video. When you have moved to the option you want to select, press F2 (labeled SELECT on the screen).

Ending a Home Expense Session

When you've finished your Home Expense session and want to return to the Model 100 Main Menu, press F8 (labeled MENU on the screen).

Typing Information Into the Home Expense Program

Both Home Expense routines (ENTER and PRINT) use the same method of accepting the information you type in. Each routine presents you with a "form" ready for you to fill out.

To Enter Information To enter expense information, simply type in the data as prompted. The cursor advances every time you enter a character. When you have typed the last character of a particular word or number, the cursor will automatically advance to the start of the next word.

If You Type In a Wrong Character Don't worry about typing errors. If you do make a mistake, use BKSP to erase the character. This key deletes the character immediately preceding the current cursor position.

If You Want to Delete a Word If you want to delete an entire word, place the cursor over it and press ESC. This key deletes all

the characters in the current word or item and places the cursor where the word's first character had been.

Moving the Cursor You can use the left and right arrows to back up and advance the cursor, respectively. Unlike BKSP, these keys do not delete any characters. If you want to jump to the next word before you reach the end of the current word, press ENTER and the cursor will jump to the start of the next word.

Recording the Information When you are satisfied with the expenses or schedules you have entered, press F1 to record the information into the HOMEXP.DO data file. If at any time you decide you don't want to complete a form (for instance if you selected PRINT when you wanted to ENTER), press F2 to return to the Home Expense Manager menu.

Changing the Information If you need to change a previously saved expense, return to the Model 100 Main Menu, move the cursor to HOMEXP.DO and press ENTER. Then *carefully* make corrections or changes. Press F8 to save the changes and return to the Main Menu.

Typing In a Home Expense

To enter an expense into the Home Expense file (automatically created and named HOMEXP.DO), press F1 to move the cursor to ENTER HOME EXPENSES and then press F2. The routine will display the Home Expense Entry Form. (See Figure 11-2.)

Bill Category: _____ Date: __/__/__

Amount: \$ _____ Paid With: _____

Check #: _____

Notes: _____

Rcrd Cncl

⏪ ⏩ ⏴ ⏵ ⏶ ⏷ ⏸ ⏹

Figure 11-2. Home Expense Entry Form

Bill Category The first blank on the screen is for a four-digit number that identifies a bill category. This number is arbitrary — you can establish your own numbering system. We suggest a system like the following:

- 0100-0199: food
- 0200-0299: transportation expenses
- 0300-0399: utility expenses
- 0400-0499: medical expenses
- 0500-0599: child care
- 0600-0699: housing and household.

You might also want to identify the method of payment in the “Bill Category.”

- 1000 numbers for cash
- 2000 numbers for charge
- 3000 numbers for check.

For instance, a grocery store food bill paid by check might be 3101, while a restaurant food bill paid in cash might be 1101.

A numbering system such as this will make it easier to examine your expenses and will simplify checkbook balancing.

Date After you have entered the bill category, fill in the date of the expense in *mm/dd/yy* format; for instance, 04/13/83 for April 13, 1983.

Amount Now complete the amount of the expense. There are six digit spaces to fill. For amounts less than \$1000.00, keep the leading spaces blank by pressing the space bar or the arrow keys. For instance, to enter \$40.00, press the space bar twice, then type **4000**. The last two zeros will be to the right of the decimal point. Even if the “cents” are zero, always enter something to the right of the decimal point.

Paid With To fill in the blank labeled PAID WITH, type the form of payment, such as **Amex**, **VISA**, or the like for credit card charges, or **cash** or **check**.

Check # If you paid by check, you’ll want to record the check number here.

```

Bill Category: 3607      Date: 08/17/83
Amount: $ 875.00      Paid With: Check_
Check #: 2034_
Notes: Household-Downpayment-dining_set_

Rcrd Cncl

```

Figure 11-3. Sample of filled-out form

Notes Finally, fill in the NOTES blank with information relevant to the expense. For instance, if utility expenses use the account numbers of 0300 to 0399, you might want to be more specific in NOTES by typing **electricity**, **water**, **gas**, or the like. For example, when Marvin and Pat made a down payment on a dining room set, their filled-out form looked like that in Figure 11-3.

Recording Expense Information

When you have entered all the information you want, press F1. This stores your data (in a compressed format) in a file called HOMEEXP.DO.

The program stores the expense first according to date and then according to account number. Consequently, an expense on July 15, 1983, under account number 1001, comes before an expense on the same day under account number 1050, but after all expenses on July 14.

Cancelling an Entry

If you want to cancel the data before it is recorded in the file, press F2 and you will return to the Home Expense Manager menu.

Displaying and Printing Out Your Expenses

To display or print out any or all of your expenses, position the Home Expense Manager menu cursor on PRINT HOME EX-


```

Starting with Bill Category # ____
Ending with Bill Category # ____
Starting Date:  __/__/__
Ending Date:  __/__/__
Specific Topic(s): _____
Print to Screen/Printer (S/P):  _

Print Cncl

```

Figure 11-4. Home Expense Print Form

PENSES and press F2. The program will display the Home Expense Print Form. (See Figure 11-4.)

Displaying Expenses by Bill Category The first two blanks are for starting and ending bill category numbers. You can specify the lowest and highest category numbers for which you want to see expenses.

- If you leave the starting category number blank, the program will begin with the lowest bill category in the file.
- If you leave the ending category number blank, the program will print up to the highest bill category number.

Displaying Expenses by Date Likewise, you may specify a starting and ending date for displaying or printing out expenses. The program will print all expenses that occurred on or after the starting date and before the ending date.

- If you leave the starting date blank, the program will start printing at the beginning of the file.
- If you leave the ending date blank, the program will print to the end of the file.

Displaying Expenses by Specific Topics The SPECIFIC TOPICS blank lets you indicate one or two particular topics for which you want to see the expense entry. Say, for example, you want to see all your utility expenses. Type in the topic (here **utilities**) and press SHIFT GRPH C. This puts a half-solid graphics block at the

end of the topic. If you want to specify a second topic, type it in after the first graphics block and again press SHIFT GRPH C. For instance,

utilities▣ medical▣

If you don't want to specify a second topic, simply press ENTER.

Selecting Screen or Printer The final blank on the form tells the program where to display the expense information.

- To display the information on the Model 100 screen, type nothing and press ENTER, or type **S** or **s**.
- To print out the information on a printer, type **P** or **p**.

For example, if you want to see all utility expenses for August, 1983, you might fill out the form as shown in Figure 11-5, where it is assumed that utility expenses range between numbers 0300 and 0399. (Again note that specific topics can be in either uppercase or lowercase or both.)

If you're printing out the information on a printer, make sure your printer is correctly connected to your Model 100 and then press F1. The program will search HOMEXP.DO for expenses that match what you have specified and print those records on the

```

Starting with Bill Category # 0300
Ending with Bill Category # 0399
Starting Date: 08/01/83
Ending Date: 08/31/83
Specific Topic(s): utilities▣
Print to Screen or Printer (S/P): s
Print Cncl
F1 F2 F3 F4 F5 F6 F7 F8

```

Figure 11-5. Home Expense Print Form filled out

Home Expense Report						
Date	Bill Category	Paid With	Check#	Notes	Amount	Total
08/07/83	3310	check	2011	electric	35.00	35.00
	3311	check	2034	water	24.00	59.00
08/08/83	3312	check	2036	gas	44.50	103.50

Figure 11-6. Format of Home Expense printout

printer. (See Figure 11-6.) When the program has reached the end of the file, it will briefly display the message END OF FILE at the bottom of the screen and return to the Home Expense Manager menu.

If you want the information displayed on the Model 100 screen, press F1. When the program finds a matching record, it will display the data in the format in which you entered it. (See Figure 11-7.) If you don't want to see any more records, press F2. To see the next expense, press F1. When the program has printed out all matching records, it will momentarily display END OF FILE on the bottom of the screen and then return to the Home Expense Manager menu.

```

Bill Category # 3310      Date: 08/07/83
Amount: $ 35.00          Paid With: check_
Check #: 2011
Notes: electric
Running Total: $35.00
Next Quit
  
```

Figure 11-7. Format of Home Expense screen display

OTHER ACTIVITIES

In addition to calculating home expenses, the Home Expense Manager serves as an excellent checkbook balancing program.

Balancing Your Checkbook With Home Expense

Once you're ready to balance your checkbook, we suggest you assign all checkbook balancing figures a unique bill category number. In the following example, we use 8000.

The two requirements for using the Home Expense Manager as a checkbook balancer are

- All deposits must be a positive value. If you want, you can precede deposits with a +. However, the program automatically assumes that all values are positive unless you specify otherwise.
- All check amounts *must* be preceded by a minus sign (−) because you are subtracting the check from the balance.

Once you've entered the data and displayed the expenses on the screen, the RUNNING TOTAL (at the bottom of the screen) will display the account's balance (and the TOTAL column on a printout).

When Marvin was ready to balance his checkbook, he entered the current balance in the account. (You might want to store the previous balance on cassette tape as a special HOMEXP.DO file. That way, you'll have a continuous record.) First he made sure the Home Expense Manager cursor was on ENTER HOME EXPENSES, and then he pressed F2. When presented with the Home Expense Entry Form, he filled it out as in Figure 11-8. He then pressed F1 to record this information. For the first check, he displayed the Home Expense Entry Form again and filled it out as in Figure 11-9 (notice that the amount is preceded by a minus sign). He again pressed F1.

The next entry in his checkbook was a deposit, so he filled out the next form as in Figure 11-10. He then pressed F1. He followed the same procedure to enter all the checks and deposits in his checkbook.

When ready to total the checkbook, Marvin displayed the PRINT HOME EXPENSE FORM, filled it out as in Figure 11-11,

Bill Category: 8000 Date: 08/01/83
Amount: \$ 1500.00 Paid With: _____
Check #: _____
Notes: current_balance _____

Rcrd Cncl

1 2 3 4 5 6 7 8

Figure 11-8. Entry Form with current balance

Bill Category: 8000 Date: 08/02/83
Amount: \$ -34.85 Paid With: Check_
Check #: 1046
Notes: Oeming's_Grocery _____

Rcrd Cncl

1 2 3 4 5 6 7 8

Figure 11-9. Entry Form showing a check

Bill Category: 8000 Date: 08/03/83
Amount: \$ 150.00 Paid With: _____
Check #: _____
Notes: deposit__receipt#_65303 _____

Rcrd Cncl

1 2 3 4 5 6 7 8

Figure 11-10. Entry Form showing a deposit

```

Starting with Bill Category # 8000
Ending with Bill Category # 8999
Starting Date:  __/__/__
Ending Date:  __/__/__
Specific Topic(s): _____
Print to Screen or Printer (S/P): s

Print Cncl
F1 F2 F3 F4 F5 F6 F7 F8

```

Figure 11-11. Print Home Expense form

and pressed F1. The check balancing information was then displayed starting with the first entered date. (See Figures 11-12 through 11-14.) When Marvin pressed F1 again, the next check was displayed, as in Figure 11-13. Pressing F1 another time produced the screen in Figure 11-14. If that were the last entry so far, an END OF FILE message would appear when he pressed F1.

Marvin connected a printer to the Model 100 and printed out the checking account information. The printout looked similar to that in Figure 11-15.

Graphic Displays

If you're capable of doing the programming, use the expense information and the Model 100's graphic display capabilities to graph a year's expenses for such items as utilities, food expenses, medical expenses, and so on.

```

Bill Category # 8000      Date: 08/01/83
Amount: $ 1500.00      Paid With:
Check #:
Notes: current balance

Running Total: $1500.00

Next Quit
F1 F2 F3 F4 F5 F6 F7 F8

```

Figure 11-12. Check balancing information, first entered date

Bill Category # 8000 Date: 08/02/83
 Amount: \$ -34.85 Paid With: check
 Check #1046
 Notes: Oeming's Grocery

 Running Total: \$1465.15

 Next Quit

<1> <2> <3> <4> <5> <6> <7> <8>

Figure 11-13. Check balancing information showing a check

Bill Category # 8000 Date: 08/03/83
 Amount: \$ 150.00 Paid With:
 Check #:
 Notes: deposit - receipt# 65303

 Running Total: \$1615.15

 Next Quit

<1> <2> <3> <4> <5> <6> <7> <8>

Figure 11-14. Check balancing information showing a deposit

Home Expense Report						
Date	Bill Category	Paid With	Check#	Notes	Amount	Total
08/01/83	8000			current balance	1500.00	1500.00
08/02/83	8000	check	1046	Oeming's Grocery	-34.85	1465.15
08/03/83	8000			deposit receipt# 65303	150.00	1615.15
08/17/83	8000	check	2034	Thomas Furn downpay-dining set	-875.00	740.15

Figure 11-15. Printout of checking account information

Shopping At Home

12

With two kids, two jobs, and a big yard needing lots of weekend gardening, Marvin and Pat Davis sometimes couldn't take the time to read the newspaper ads or drive from store to store to find the best buy—even for major purchases. And when they did run around looking for that best buy—and sometimes finding it—they realized they were still wasting a lot of time and money. There had to be a better way to shop. When they got their Model 100, Marvin and Pat found that better way.

Using the Model 100's built-in modem and software, they could shop right at home 24 hours a day, 7 days a week, through the Comp-U-Store Home Shopping Service, available at additional cost through CompuServe and several other information services. They didn't have to put up with salespeople, long lines, traffic jams, and all the other headaches of shopping. Best of all, they saved money.

After only two or three purchases, they had saved enough money for the Model 100 to pay for itself. (That was the good news; the bad news was that they could have saved \$150 on their Model 100 itself.)

Let's look at one instance. When their TV went on the fritz, they began looking around at new color sets. They knew what they wanted and what they could afford—and the two figures didn't match up. They could spend about \$350, yet the set they wanted listed for about \$500. After checking stores in their area, they had just about decided that they'd have to settle for less than they wanted.

One evening when Marvin was browsing through CompuServe, the computer information service to which he subscribed after reading about it in the manuals that came in his Model 100 Modem Cable package, he came across Comp-U-Store, a database service that contained information on over 50,000 name-brand items—everything from roller skates to pianos. After a little investigation, Marv discovered that they could get the color TV of their choosing for 40% less than the lowest list price they had seen so far: \$320 through Comp-U-Store, compared to \$450 list, a savings of \$130.

Among the goods they also found they could buy were

- New cars (for only \$125 over dealer's cost)
- Stereos
- Telephone equipment
- Sewing machines
- Furniture (everything from patio furniture to recliners)
- Luggage
- Refrigerators
- Microwave ovens
- Computers and computer products (hardware and software).

How did they pay for their purchases? Just as they would at any other store—personal checks, VISA, or MasterCard.

CONNECTING THE HARDWARE

To shop at Comp-U-Store via CompuServe, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a direct-connect telephone

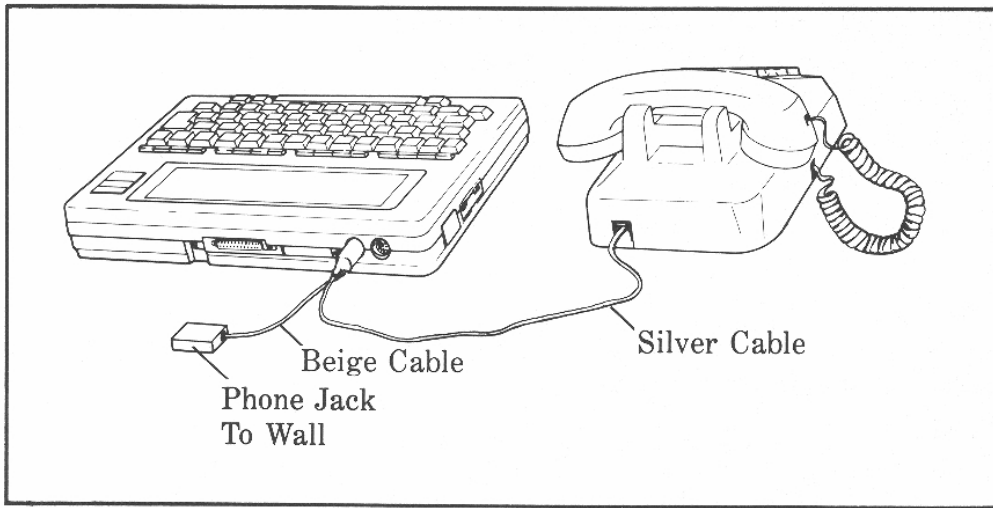


Figure 12-1. Connecting the Model 100 to a phone by a Modem Cable

- A Model 100 Acoustic Cup set and a telephone.

If you're connecting the Model 100 directly to a telephone, use the Model 100 Modem Cable and set up the system as shown in Figure 12-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG. (Both switches are on the left side of the computer.)

If you're connecting the Model 100 to Model 100 Acoustic Cups, set up the system as shown in Figure 12-2. Be sure to set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

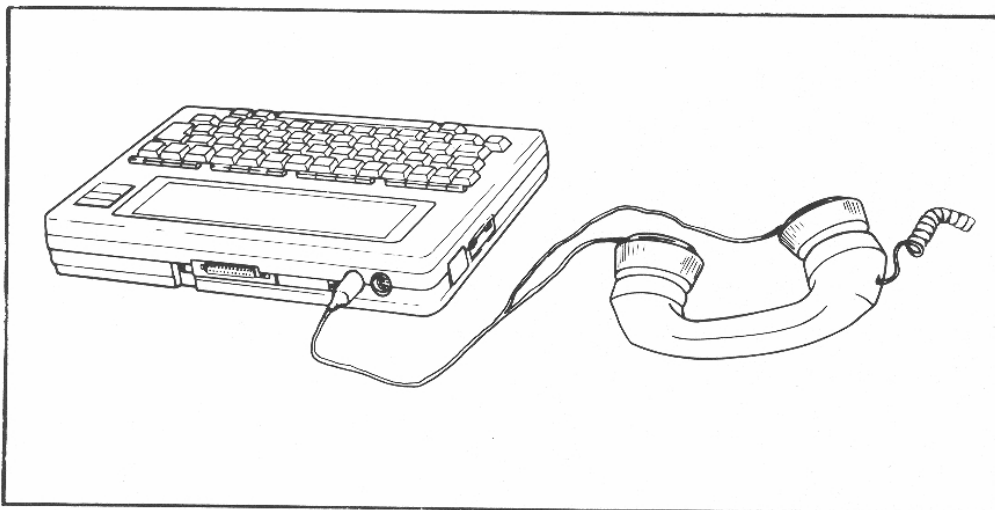


Figure 12-2. Connecting the Model 100 to a phone by the Acoustic Cups

SETTING UP THE SOFTWARE

The next step is to set the computer's communications software so that it is the same as CompuServe's (that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length). To set the Model 100 so that it matches CompuServe, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem (you are not using the Acoustic Cups) when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP, move the Main Menu cursor to TELCOM, and press ENTER. Then press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

LOGGING ON TO COMPUSEVE

The Model 100 and CompuServe are now ready to "talk" to each other and the TELCOM: prompt should be displayed; press F2 for CALL. When the CALL prompt appears, type in the local CompuServe number. For instance, type

5551234

Next (without pressing ENTER) type greater-than and less-than signs after the number:

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep.

When the cursor to the right of the last digit dialed begins blinking, press ENTER. At this point, check to be sure that you are in full duplex. If the screen displays HALF over F4, press F4.

If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections, and check the software status; that is, be sure that the screen displays M7I1E or 37I1E, depending on whether you're using a Modem Cable or Acoustic Cups. Then repeat the procedure for logging on.

If the connection is completed, a special code will then appear, followed by this message:

HOST NAME:

You should type

CIS ENTER

The following message from CompuServe will appear:

USER ID:

Simply type in the ID number CompuServe sent you when you subscribed, and press ENTER; for example,

USER ID: 70703,912 ENTER

After a brief pause, CompuServe will ask you for your secret password.

PASSWORD:

Type in your password—carefully since it won't be displayed on the screen—and press ENTER. If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of the entire procedure should look something like this:

Telcom: Call 5551234<>

Calling 5551234

01MCI

HOST NAME: CIS

USER ID: 70703,912

PASSWORD:

ACCESSING COMP-U-STORE

Once you've logged on to CompuServe, you'll be presented with a screen similar to that in Figure 12-3. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To get to Comp-U-Store, select option 1, Home Services, by typing 1 and pressing ENTER. You'll then be presented with another menu that looks like that in Figure 12-4.

Select option 4, Home Shopping/Banking, by typing 4 and pressing ENTER, and CompuServe will take you to the Home Shopping/Banking menu. (See Figure 12-5.) Select option 1, Comp-U-Store, and you will be presented first with Comp-U-Store's introductory message and then, if you're a Comp-U-Store member, with the first Comp-U-Store menu. (See Figure 12-6.)

If you're not a Comp-U-Store member, you may get a special menu that offers a description of the service, a shop-at-home demonstration, and an on-line membership sign-up. (See Figure 12-7.) (The > is the Comp-U-Store command prompt that signifies that the service is waiting for you to type something.) And if you're not a member, you'll be able to see the TOP menu (Figure 12-8)—although you still won't be able to order anything.

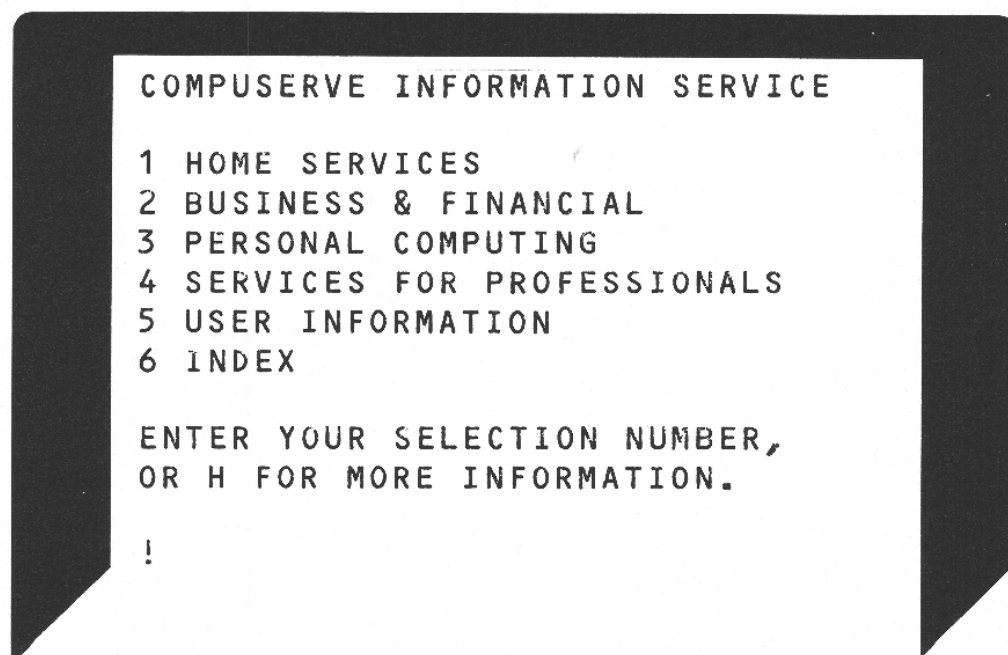


Figure 12-3. CompuServe main menu

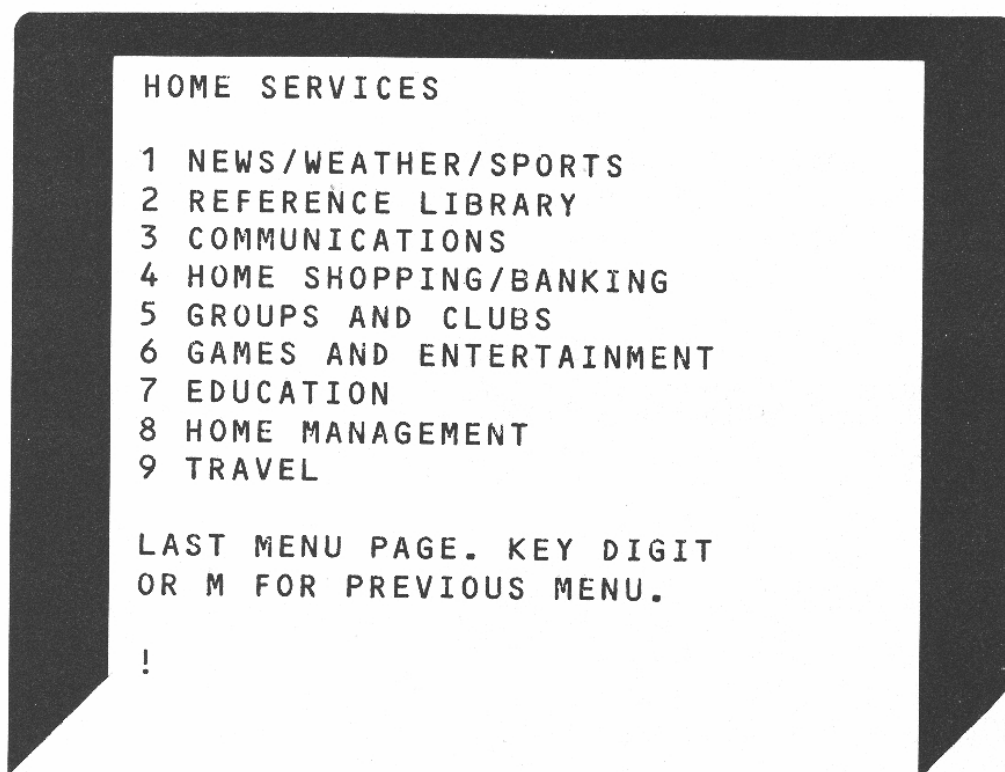


Figure 12-4. CompuServe Home Services menu

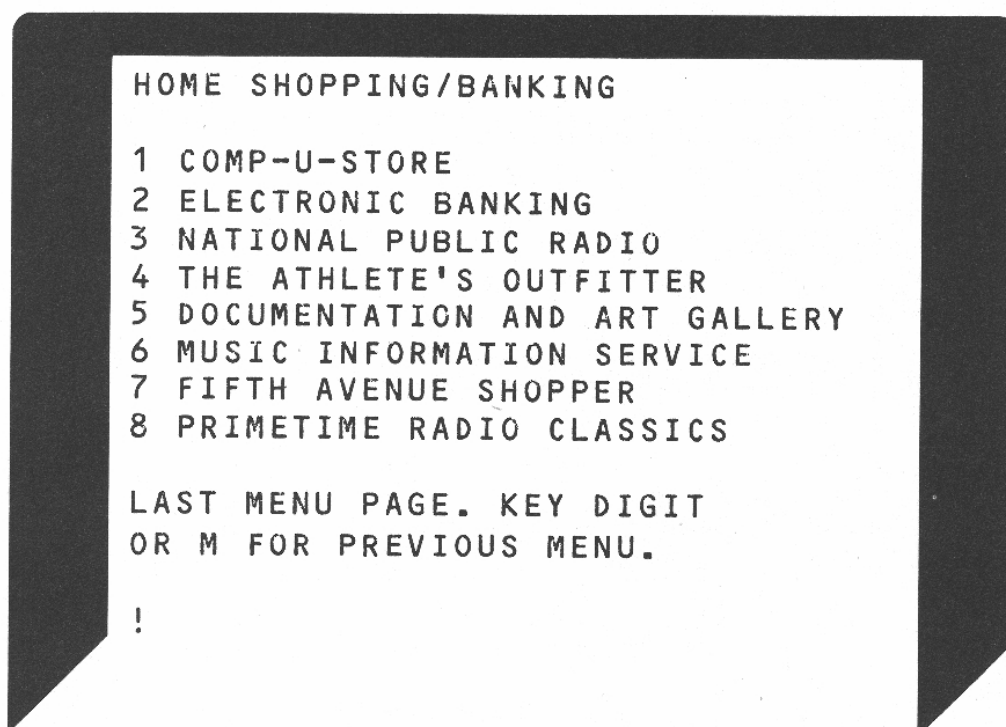


Figure 12-5. Home Shopping/Banking menu

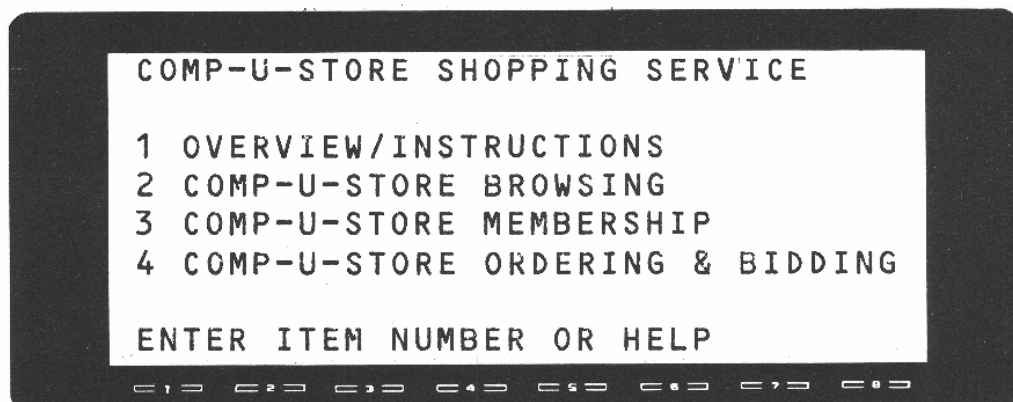


Figure 12-6. *Comp-U-Store menu for members*

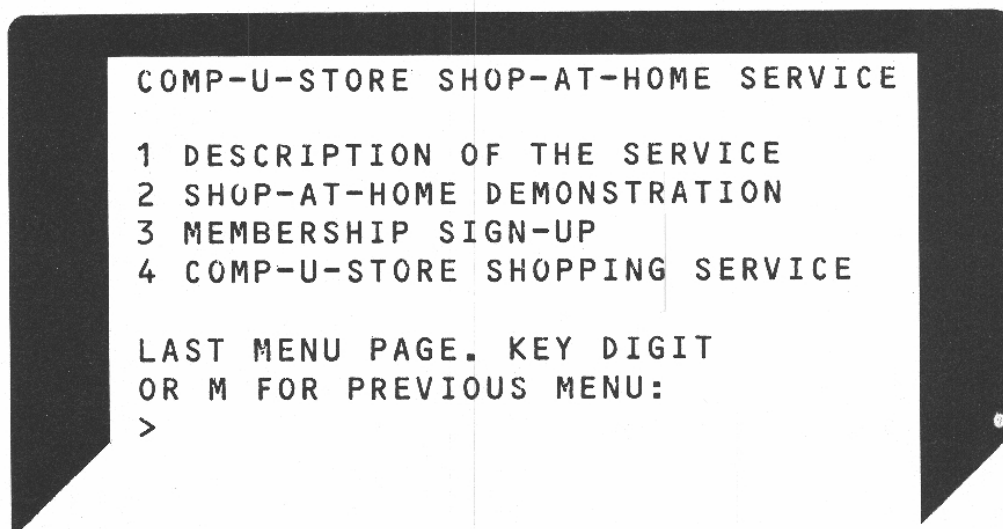


Figure 12-7. *Comp-U-Store menu for nonmembers*

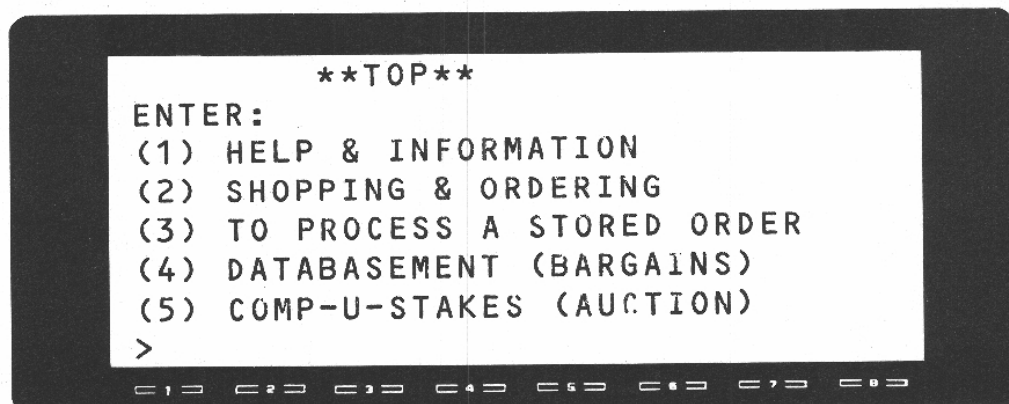


Figure 12-8. *The TOP menu*

If you are a Comp-U-Store member, select option 4 on the menu in Figure 12-6 by typing 4 and pressing ENTER; you will be prompted:

ENTER MEMBERSHIP #:

>

Type in the number assigned to you when you subscribed to Comp-U-Store and press ENTER. You will be prompted:

ENTER ACCESS CODE:

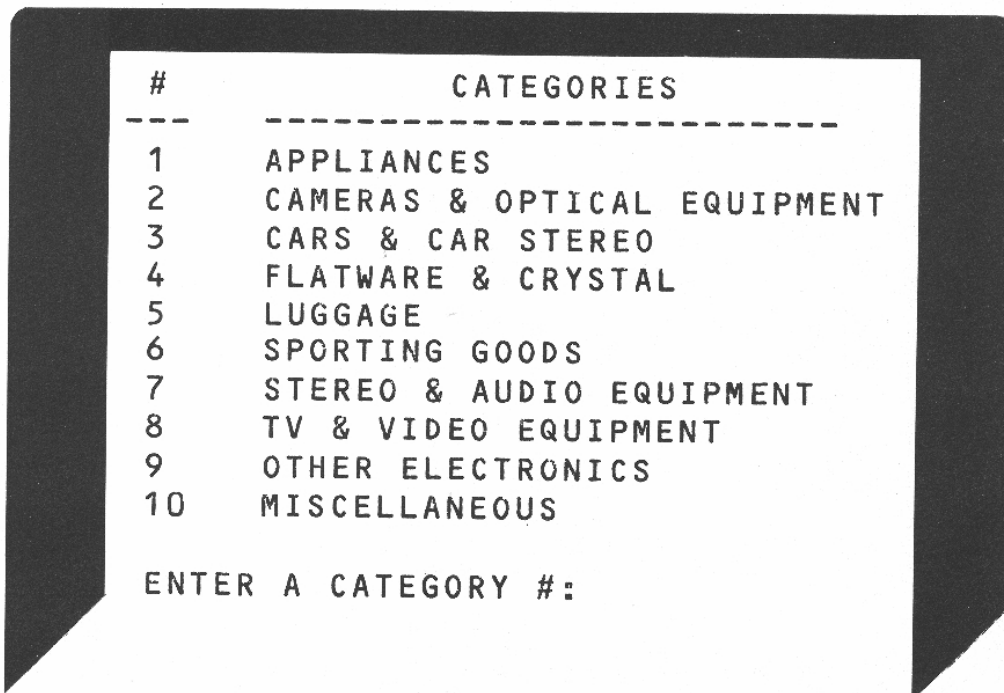
>

Since the Access Code is secret, it will not appear as you type. When you have typed it in, press ENTER. Once you are on-line with Comp-U-Store, a menu similar to the one shown in Figure 12-8 will appear.

We suggest you start by requesting a list of merchandise categories. Type

>LIST ENTER

Once you've done so, a display similar to that in Figure 12-9



#	CATEGORIES
1	APPLIANCES
2	CAMERAS & OPTICAL EQUIPMENT
3	CARS & CAR STEREO
4	FLATWARE & CRYSTAL
5	LUGGAGE
6	SPORTING GOODS
7	STEREO & AUDIO EQUIPMENT
8	TV & VIDEO EQUIPMENT
9	OTHER ELECTRONICS
10	MISCELLANEOUS

ENTER A CATEGORY #:

Figure 12-9. Comp-U-Store list of merchandise categories

will appear. Marvin, for example, typed

8 ENTER

for TV & VIDEO EQUIPMENT. A list of the different categories of TV products that Comp-U-Store provides then appeared. (See Figure 12-10.) Since Marvin was looking for a television, he typed

TVSN ENTER

Comp-U-Store next prompted:

ENTER:

BRAND NAME

(NP) NO PREFERENCE

(LIST) BRAND LISTING

>

Because he wasn't looking for a particular brand of television, he typed

NP ENTER

CODE	PRODUCT
----	-----
TVAC	TV ACCESSORIES
TVCA	TV CAS/CAM ACCESS
TVCM	VIDEO CAMERAS
TVCR	VIDEO CASSETTE RECORDERS
TVDK	VIDEO DISK PLAYERS
TVGM	TV GAMES & CARTRIDGES
TVSN	TELEVISION
TVSY	TV COMPONENTS
TVTP	TV BLANK TAPE
ENTER A PRODUCT TYPE:	

Figure 12-10. Subcategories within a merchandise category

Next, Comp-U-Store asked him if he wanted a black and white or color TV.

```
COLOR OR BLACK & WHITE
(NP) NO PREFERENCE
(1) COLOR
(2) BLACK & WHITE
>
```

He typed

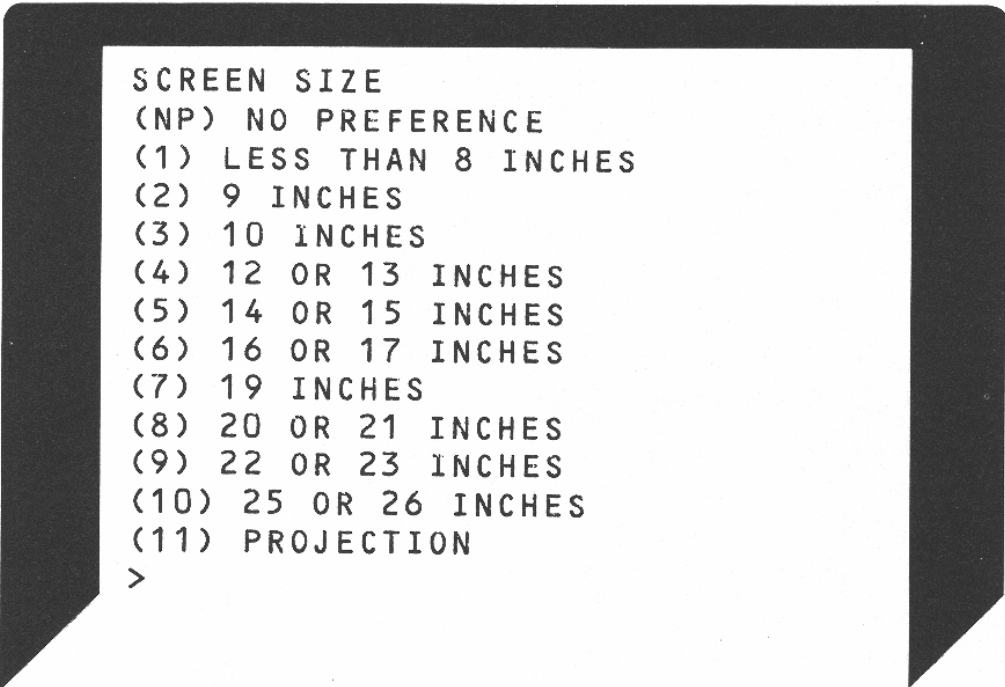
```
1 ENTER
```

Since TVs differ by screen size, Marvin was asked what size he was interested in. (See Figure 12-11.)

Marvin and Pat had already decided on a 19" TV, so he typed

```
7 ENTER
```

Next Comp-U-Store asked him if he wanted remote control.

A computer screen with a black border and a white background. The screen displays a list of TV screen sizes. The text is as follows:

```
SCREEN SIZE
(NP) NO PREFERENCE
(1) LESS THAN 8 INCHES
(2) 9 INCHES
(3) 10 INCHES
(4) 12 OR 13 INCHES
(5) 14 OR 15 INCHES
(6) 16 OR 17 INCHES
(7) 19 INCHES
(8) 20 OR 21 INCHES
(9) 22 OR 23 INCHES
(10) 25 OR 26 INCHES
(11) PROJECTION
>
```

Figure 12-11. List of TV screen sizes

REMOTE CONTROL
(NP) NO PREFERENCE
(1) YES
(2) NO
>

He didn't, so he typed

2 ENTER

Comp-U-Store then asked him where the TV was to be shipped to. (Shipping charges are automatically figured into the quoted price.)

SHIP-TO-STATE
(NECESSARY FOR QUOTE)
>

Marvin typed

ILLINOIS ENTER

Finally Comp-U-Store asked Marvin

WHAT'S THE MOST YOU WILL SPEND?
>\$

He responded

325 ENTER

Comp-U-Store then displayed a list of all televisions that met Marvin's specifications. (If Comp-U-Store has no product meeting your specifications in the price range you're after, it will tell you so at this time.) (See Figure 12-12.)

Marvin was interested in the Sylvania unit, so he typed

5 ENTER

A display similar to that in Figure 12-13 appeared.

If Marvin didn't want to order this TV, he would type N and press ENTER and the previous menu would appear. The next section describes what happens if you want to order the product.

```

TELEVISION                                PAGE 1 OF 1
#   MFG      MODEL                        FDC
1  GE        19PC3704W                    320.03
2  SHRP      19H74                        324.51
3  SNYO      91C500                        305.74
4  SNYO      91C510                        321.39
5  SYLV      CXB161W                      320.03
6  TSHB      CE910                        321.79

ENTER:  AN ITEM #, OR
        (P#) FOR THAT PAGE
        (CHA) TO CHANGE >

```

Figure 12-12. List of goods meeting shopper's specifications

```

TELEVISION
MFG :SYLVANIA      MODEL:CXB161W
LIST:  439.95      SRCHG:
FDC :   320.03      COLOR:WG
SAVE   119.92
-----DESCRIPTION-----
19" COLOR PORTABLE TV WITH TWO
DIAL TUNING. WALNUT GRAINED
CABINET.

WANT TO ORDER? (Y OR N)

```

Figure 12-13. Specifications of a particular product

ORDERING MERCHANDISE THROUGH COMP-U-STORE

When you decide that you want to place an order with Comp-U-Store, answer the question in Figure 12-13, WANT TO ORDER? (Y OR N), by typing Y and pressing ENTER.

Comp-U-Store will ask you how many of the items you want to order:

QUANTITY:

Marvin wanted (and could afford) only one TV, so he typed

1 ENTER

Comp-U-Store then displayed a message similar to the one shown in Figure 12-14.

Since Marvin wanted to order the TV, he typed

3 ENTER

Comp-U-Store returned with a display similar to that in Figure 12-15.

Since the ordering information was correct, Marvin typed 1 and pressed ENTER. Comp-U-Store then told him how much he

```
ORDER IS SUBJECT TO OUR VENDORS' AVAILABILITY.
PLEASE ALLOW 3-5 WEEKS FOR DELIVERY. THANK YOU.
ENTER:
(1) TO STORE ITEM & GO TO TOP
(2) TO CANCEL THIS ITEM & GO TO TOP
(3) TO PROCESS ORDERS
>
```

Figure 12-14. Order initiation menu

```
ORDER CONFIRMATION:
# TYPE  MFG      MODEL #  FDC
1 TVSN  SYLV     CXB161W 320.03
QTY:  1
ENTER:
(1) IF OK
(2) TO CANCEL AN ITEM
(3) TO REDISPLAY ORDER >
```

Figure 12-15. Order confirmation menu

owed and asked him how he wanted to pay. (See Figure 12-16.)

Since Marvin wanted to pay by personal check, he typed

CH ENTER

Comp-U-Store sent him the message

**A TWO WEEK DELAY OCCURS WHILE CHECK CLEARS.
PAY BY CHECK? (Y OR N):**

He didn't mind the wait, so he typed **Y** and pressed **ENTER**.

Marvin was told to whom to make the check out (Comp-U-Store) and was asked the exact address to which the television was to be shipped.

He was then given one last chance to cancel the order, which he declined to do. Comp-U-Store then displayed a referral number (that is, the electronic equivalent of a receipt) for him to copy.

Once the order was processed and confirmed, Comp-U-Store automatically returned Marvin to the **TOP** menu, where he typed

EXIT ENTER

to return to CompuServe. Next he typed

BYE ENTER

to log off CompuServe, and finally pressed **F8** to disconnect from the phone line.

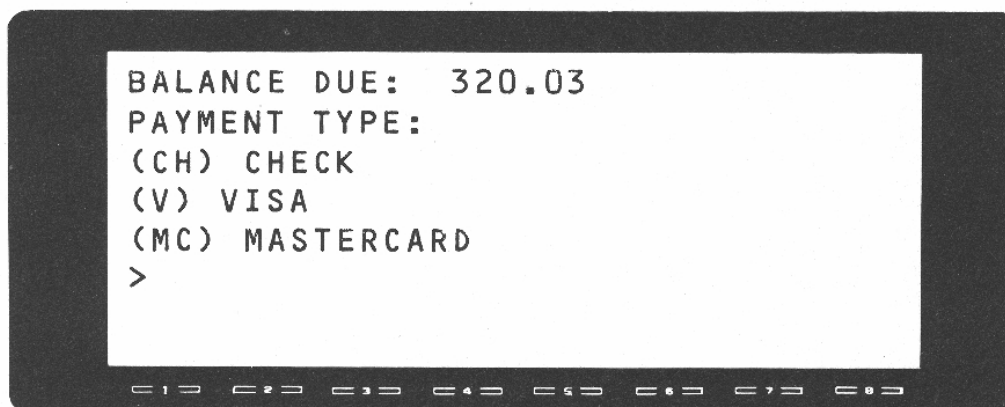


Figure 12-16. Display of balance due and payment choices

HOW TO FIND OUT MORE ABOUT COMP-U-STORE

If you want more information on Comp-U-Store, write or call the service at

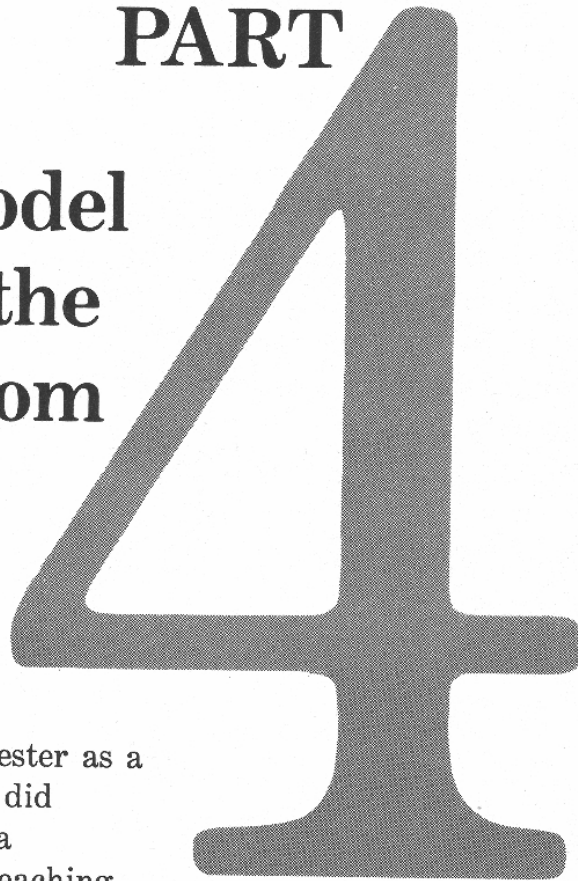
Comp-U-Card of America, Inc.
777 Summer Street
Stamford, CT 06901
Telephone: 800-243-0266
800-942-3315 (in Connecticut)

SUGGESTED ACTIVITIES

Comp-U-Store can also be accessed through The Source or Dow Jones. If you subscribe to those information services, see your user's guides for information on accessing Comp-U-Store. In addition, both CompuServe and The Source provide their own shopping services for such merchandise as books, records, clothes, artwork, and more. See your information service user's guide for more details.

PART

The Model 100 in the Classroom



For as long as she could remember, Mary Teaff had wanted to be a schoolteacher.

But not until the second day of her first semester as a high school science teacher did Mary begin to realize that a teacher's job is more than teaching per se. It also involved, she found out, record keeping and research and a host of other duties.

Although Mary was teaching at a small school in a rural area, personal computers had been in use there for some time. The business education and math classes shared computers, and the office kept attendance records on floppy diskettes. Such heavy use made it difficult for Mary to schedule computer time.

Consequently, when the principal of Mary's school made the decision to purchase several Model 100s, Mary couldn't have been happier. She'd had enough experience with computers in college to know they could increase her efficiency in her clerical duties and improve her effectiveness as a teacher. What she had yet to discover was the number of uses to which she *and her students* could put the Model 100.

When she needed to record grades, she could take a Model 100 home at night and print out the results the next day when she got back to school. Or if any of her students needed to do research, they could take the Model 100 to the library and type in notes faster than they could write them down by hand. And if Mary wanted to do research, she had only to connect the Model 100 to a telephone and dial an information service that provided research resources that she couldn't obtain locally.

The Model 100 was ideal for Mary when she gave a speech or lecture since it would fit on the lectern just like a piece of note paper. At the same time, her students could use Model 100s to take notes on the lectures she was giving. (The only thing Mary regretted was that she hadn't had a Model 100 when she was in school.)

In this section, we'll show you how the Model 100 can become one of the most effective classroom tools for both teachers and students.

Writing A Research Paper

13

When she accepted the job as science teacher in a small high school, Mary Teaff was not prepared for the lack of library facilities. She had always taken such facilities for granted; as a university student, she had been used to a 10-story library building that provided almost unlimited research resources. As a teacher, however, she found the small room that made up the school library totally inadequate.

Yet to give her students the best possible opportunities, she had to provide them with at least adequate research facilities and library skills. (After all, she had always felt that the real key to learning was not knowing all the answers, but knowing where to find them.)

Once she became familiar with the school's new Model 100s, Mary found the resources she needed in the CompuServe Information Service. She discovered that everything from an encyclopedia

to the contents of thousands of periodicals could be accessed via her Model 100.

CONNECTING THE HARDWARE

To use CompuServe's research services, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a direct-connect telephone
- A Model 100 Acoustic Cup set and a telephone.

If you're connecting the Model 100 directly to a telephone, use the Model 100 Modem Cable and set up the system as shown in Figure 13-1. Be sure to set the Model 100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG. (Both switches are on the left side of the computer.)

If you're connecting the Model 100 to a phone by the Model 100 Acoustic Cups, set up the system as shown in Figure 13-2. Be sure to move the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

SETTING UP THE SOFTWARE

The next step is to set the Model 100's communication software so that it matches CompuServe's (that is, 300 baud, Ignore Parity,

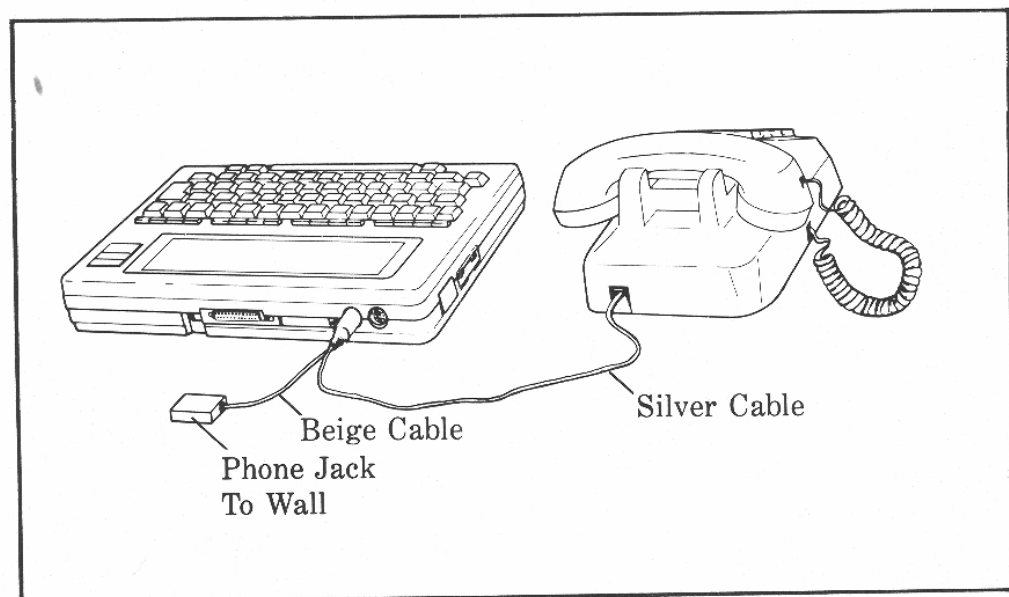


Figure 13-1. Connecting the Model 100 to a phone by a Modem Cable

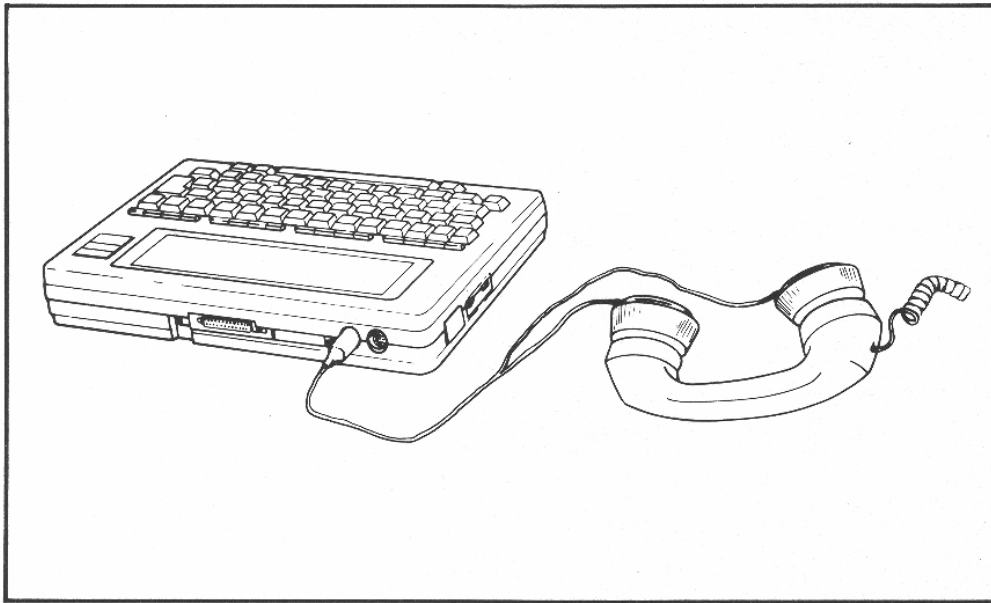


Figure 13-2. Connecting the Model 100 to a phone by Acoustic Cups

1 Stop Bit, 7 Word Length). To do so, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem, when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP and move the Main Menu cursor to TELCOM and press ENTER. Next press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

LOGGING ON TO COMPUERVE

The Model 100 and CompuServe should now be ready to "talk" to each other, and the TELCOM: prompt should be displayed. Press F2 for CALL. When the CALL prompt appears, type in the local CompuServe number. (If you're in an unfamiliar city, see CompuServe's national phone directory of local numbers.) For instance, type

5551234

Next (without pressing ENTER), type greater-than and less-than signs after the number:

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep. When the cursor to the right of the last number starts blinking, press ENTER. At this point, check to be sure that you are in full duplex. If the screen displays HALF over F4, press F4. If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections. Then check the software STATUS; that is, check that the screen displays M7I1E or 37I1E, depending on whether you're using a Modem Cable or Acoustic Cups. Finally, repeat the procedure.

When the connection is completed at the other end, a special code will appear, followed by this message:

HOST NAME:

You should type

CIS ENTER

The following message from CompuServe will appear:

USER ID:

Simply type in the ID number CompuServe assigned to you when you subscribed and press ENTER; for example,

USER ID: 70703,912 ENTER

After a brief pause, CompuServe will ask for your secret password.

PASSWORD:

Type in your password—carefully, since the password won't be displayed on the screen—and press ENTER. If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of

the entire process should look something like this:

```
Telcom: Call 5551234<>
Calling 5551234
      01MC1
HOST NAME: CIS
USER ID: 70703,912
PASSWORD:
```

ACCESSING RESEARCH INFORMATION

Once you've logged on to CompuServe, you'll be presented with a screen similar to that in Figure 13-3. (The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something.) For research information, select option 1, Home Services, by typing 1 and pressing ENTER. You'll then be presented with a menu similar to that in Figure 13-4.

You now have the option of selecting either of two different types of research material—encyclopedias or periodicals.

- If you want periodical material, such as magazines or government publications, select option 2, Reference Library.

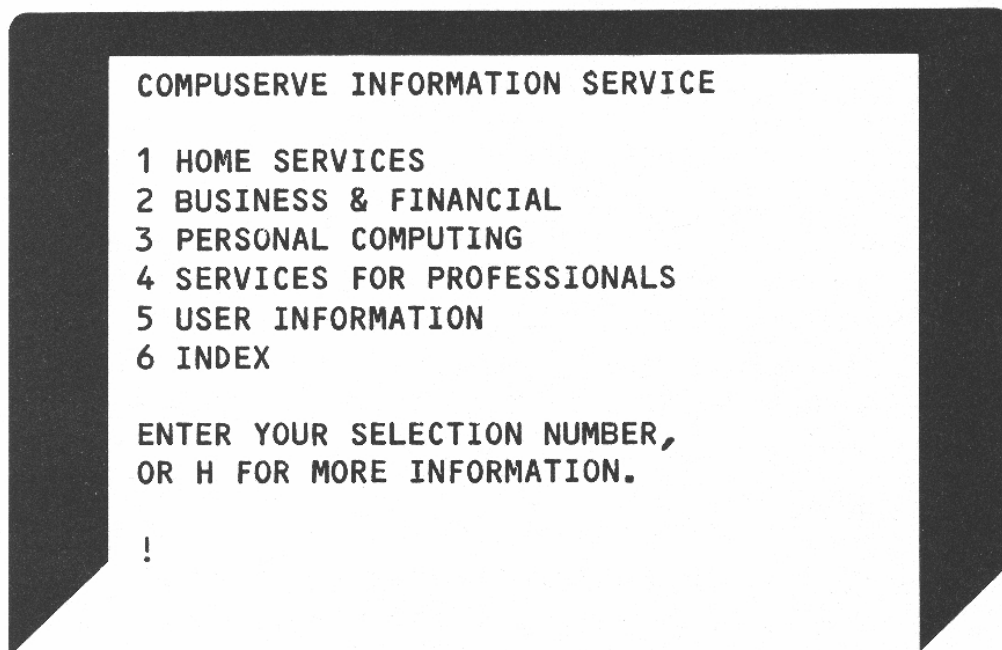


Figure 13-3. Screen after logging onto CompuServe

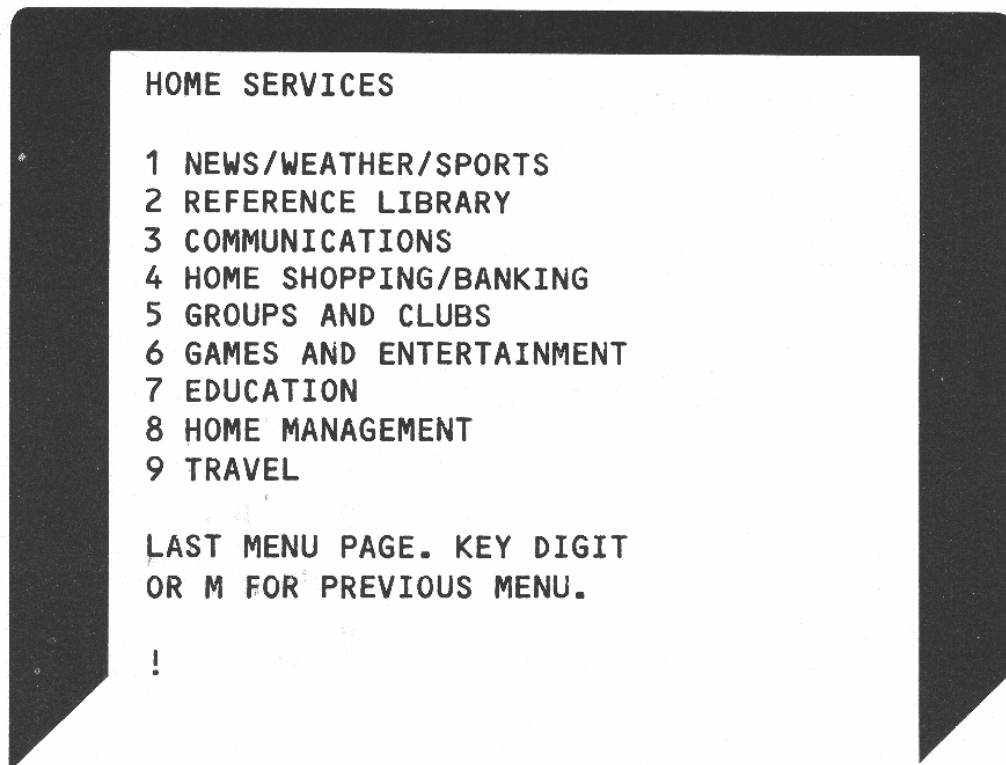


Figure 13-4. Menu for Home Services

- If you want encyclopedia material, select option 7, Education.

Obtaining Encyclopedia Material

Why would you want to use CompuServe's encyclopedia rather than the one on the library shelf? The library copy may be less up-to-date—a real handicap in many fields of knowledge—and smaller and less comprehensive. The Grolier Encyclopedia that CompuServe provides has over nine million words and 30,000 entries. Cross-referencing is fast and easy, and complete bibliographies list other relevant publications for further research.

Furthermore, if you have a printer connected to the Model 100, it's a simple matter to print out articles as they are sent from the information service; just press the F5 ECHO function key. (Be sure the printer can print at a minimum of 300 baud.)

You can also use TELCOM's download feature to store the research material in a Model 100 TEXT.DO file as you receive it. Then use the TEXT word processing program to merge the material with other pertinent information as you write the report or

paper. (The next step is to create a Model 100 cassette tape library by saving the TEXT files and cataloging them for future reference. A classroom teacher or school librarian might find this especially useful.)

To use the encyclopedia, select option 7, by typing 7 and pressing ENTER, and CompuServe will take you to the Education menu. (See Figure 13-5. The \$ sign indicates that using that option incurs costs that are in addition to your regular CompuServe costs.)

To get to the encyclopedia, next select option 1, Grolier's Academic American Encyclopedia, by typing 1 and pressing ENTER. You'll be presented with a menu similar to that in Figure 13-6. If you want information on how to use the encyclopedia, select option 2, AAE User's Guide. Otherwise, begin researching a topic by selecting option 1, Electronic Encyclopedia.

When the ! prompt is displayed, you can begin searching the encyclopedia for a particular topic. Type in the SE ("search") command followed by a word identifying the topic. For instance, when one of Mary's students was writing a research paper on solar energy, she typed

! SE SOLAR ENTER

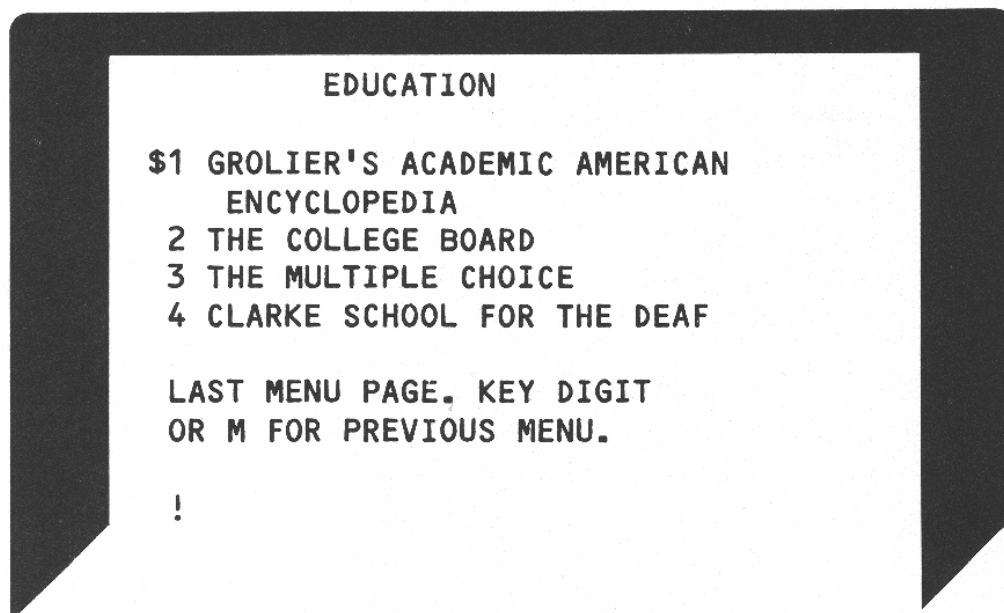


Figure 13-5. CompuServe's Education menu

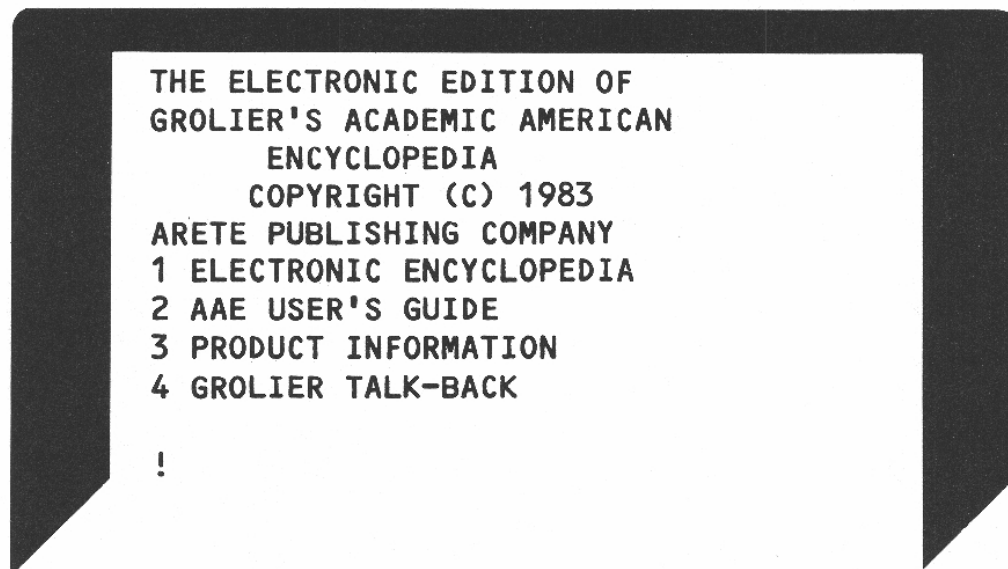


Figure 13-6. Screen for encyclopedia

The encyclopedia displayed a list of available articles. (See Figure 13-7.) By selecting option 3, Solar Energy, the student was able to read a general article on solar energy. When she finished reading, she pressed ENTER, and another menu, similar to that in Figure 13-8, appeared.

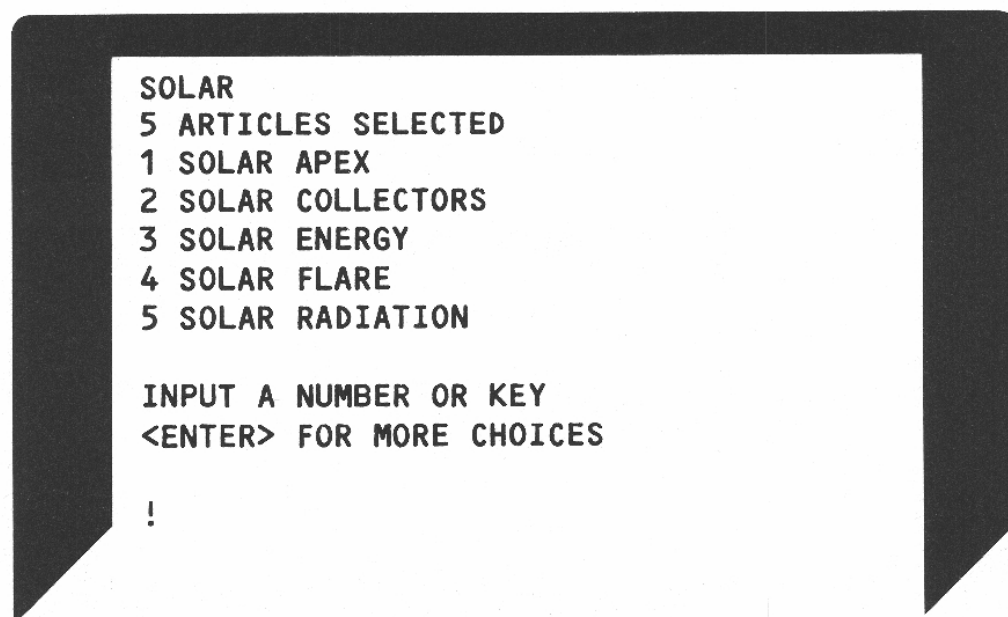


Figure 13-7. List of available articles

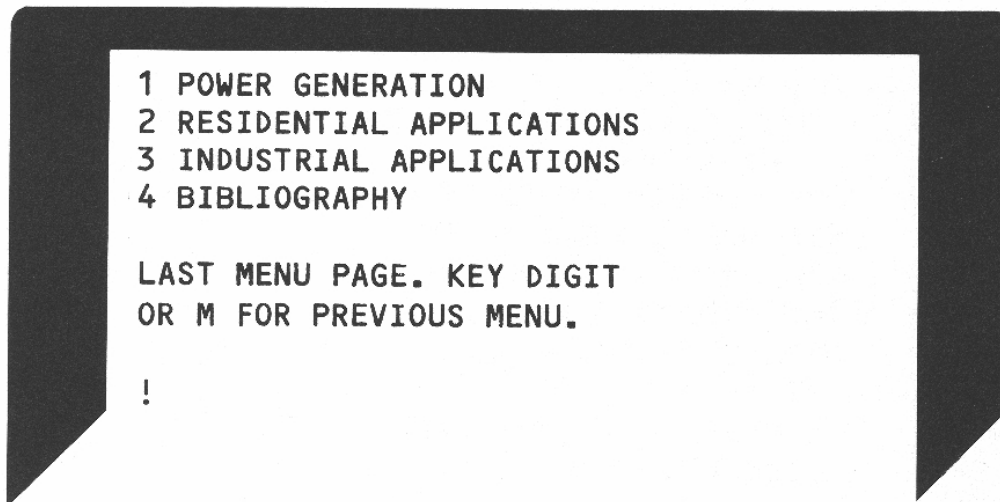


Figure 13-8. Menu after reading entry on solar energy

Since the student was interested primarily in solar energy use in homes, she selected option 2 by typing 2 and pressing ENTER. An article on that topic appeared. After that, another menu, like that in Figure 13-9, was displayed.

After the student had all the information she needed, she typed M and pressed ENTER to return to a menu like the one in Figure 13-8. There she selected option 4, Bibliography, to find other sources of solar energy information. (The bibliographies list the author, the title, and the year of publication of books on the subject.)

Obtaining Periodical Information

When Mary's student was ready to look up magazines and other periodicals, she returned to CompuServe's Home Services menu

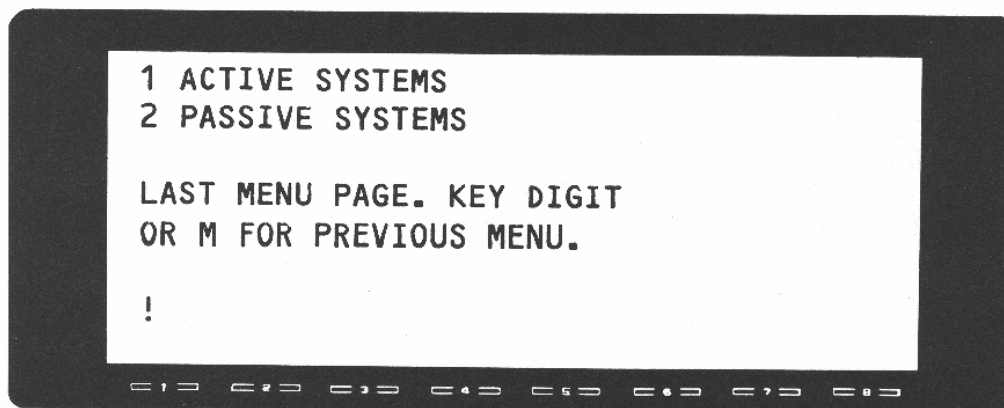


Figure 13-9. Menu after reading entry on residential applications

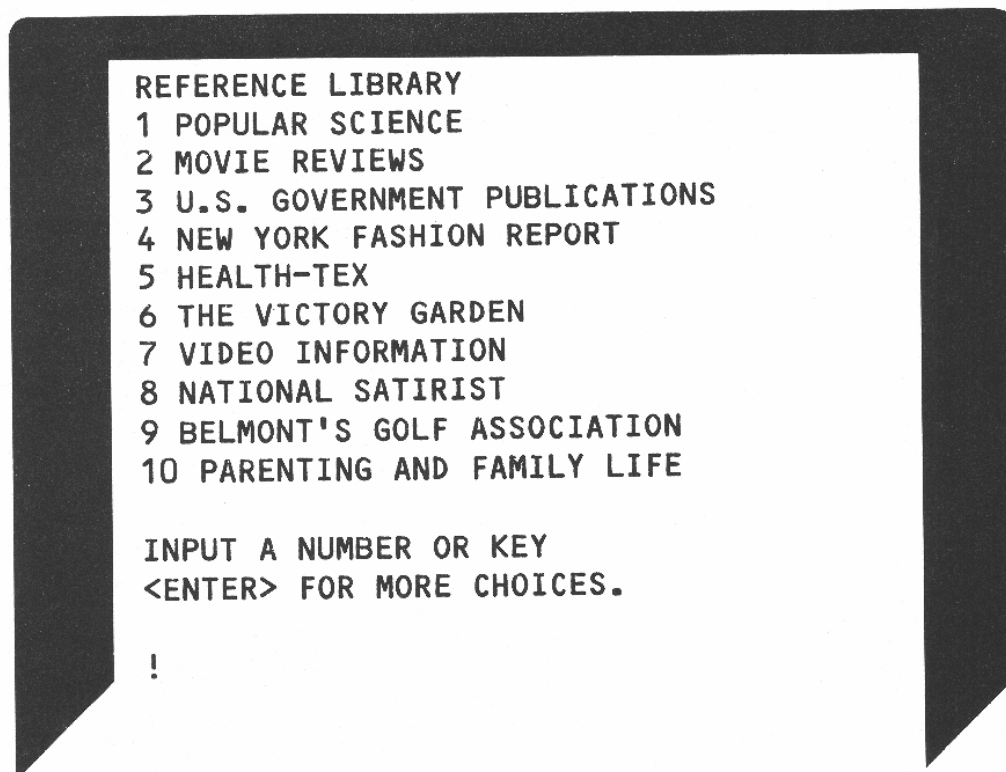


Figure 13-10. Reference Library main menu

(shown in Figure 13-4). She selected option 2, Reference Library, by typing 2 and pressing ENTER. A list of available publications like that in Figure 13-10 was displayed.

Since *Popular Science Magazine* regularly carries articles concerning solar energy, the student selected option 1 (by typing 1 and pressing ENTER). She was able to obtain three articles on solar energy—one on a solar house, another on solar energy applications in an urban environment, and a third on solar hot water heaters. She then returned to the Reference Library menu (see Figure 13-10) and selected option 3, U.S. Government Publications, where “Energy Conservation” was one of the topic categories; choosing this option produced three government pamphlets about solar energy.

OTHER ACTIVITIES

CompuServe isn't the only information service that provides reference material. Other services offer extensive reference material for high schools, colleges and universities, and business. How-

ever, some have fewer hours of access than CompuServe and are therefore not as convenient, and they are costlier to use.

Knowledge Index

One such service, the Dialog Information Service, offers the Knowledge Index, a reference source with over four million summaries of books, magazine articles, and reports on topics related to business, technology, science, current events, and more.

To keep service costs to a minimum, Knowledge Index is available only in the evenings and on weekends—exactly the times when high school libraries and some college libraries are closed. Consequently, the Model 100 is the ideal computer for students: They could check one out (just as they would an overnight book from the reference library), connect it to their home phone, call up Knowledge Index, and get their homework done.

Unlike such information services as CompuServe, Knowledge Index does not have its own telephone network; it must be accessed via a local Tymnet or Telenet phone number. (See Appendix B.) When you subscribe to Knowledge Index, you'll be provided with a directory of local Tymnet or Telenet phone numbers and instructions on accessing them.

Accessing the Knowledge Index You make the same Model 100 hardware connections (that is, phone connections) to communicate with Tymnet or Telenet as you do for CompuServe, described earlier in the chapter in "Connecting the Hardware." Setting the communications protocols is also the same, although the specific software requirements may be different. See "Setting Up the Software," earlier in this chapter, and the Knowledge Index literature for details.

Once the hardware and software are set up, the Model 100 and Telenet should be ready to "talk" to each other, and the TELCOM: prompt should be displayed. Press F2 for CALL. When the CALL prompt appears, type in the local Telenet number. For instance, type

5554321

Next, without pressing ENTER, type greater-than and less-than signs after the number.

5554321<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep. When the cursor to the right of the last number starts blinking, press ENTER. At this point, check to be sure you're in full duplex. If the screen displays HALF, press F4.

(If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections, and then repeat the procedure.)

When the connection is completed at the other end, press ENTER twice to establish connection. The following message from Telenet will appear:

TELENET 817 19E

(In this message, 817 19E is a sample code; the actual code will vary according to the location you're calling from.) Next, Telenet will display the message:

TERMINAL =

In response to this prompt, simply press ENTER. After a brief pause, Telenet will send you the message:

@

You can then specify that you want the Knowledge Index service by typing

C 41548K ENTER

Knowledge Index will prompt you for your account number and password (assigned when you subscribed). Type them in and press ENTER.

If you make a mistake while entering either the account number or password, Knowledge Index will tell you so and ask you to repeat the procedure.

The results of the entire procedure should look something like this:

```
Telcom: Call
Calling 5554321
TELENET 817 19E
TERMINAL=
@C 41548K
```

CONNECTED
DIALOG INFORMATION SERVICE
ENTER YOUR ACCOUNT NUMBER:
ENTER YOUR PASSWORD:

Using Knowledge Index to Research a Subject Once on-line with Knowledge Index, you'll be able to search through thousands of articles in just a few minutes. To sift through them, all you have to know is the general subject area within which your topic interest fits. When Knowledge Index prompts you, ?, to let you know that you can request information, the general procedure is to

1. Tell Knowledge Index to begin (by typing **BEGIN**) a section from one of the following nine general subject areas, listed in the literature you receive when you subscribe to Knowledge Index:

- Agriculture
- Business Information
- Computers and Electronics
- Corporate News
- Education
- Engineering
- Government Publications
- Magazines
- Medicine.

For example, type

BEGIN EDUCATION ENTER

2. Tell the service to find (by typing **FIND**) a more specific topic. Knowledge Index will then tell you how many articles are filed on that topic. For example,

FIND ELEMENTARY EDUCATION ENTER

3. Tell Knowledge Index to display (by typing **DISPLAY**) one of the articles. (Each article is identified by a code.) For instance, type

DISPLAY S1 ENTER

4. To exit Knowledge Index, simply type **LOGOFF** when the ? prompt is displayed (at the end of the article).

? LOGOFF ENTER

How to Find Out More About Knowledge Index If you're interested in subscribing to Knowledge Index, you can send for a brochure outlining the services they offer:

Knowledge Index
DIALOG Information Services, Inc.
3460 Hillview Ave.
Palo Alto, CA 94304
Telephone: 800-528-6050, ext. 415
800-352-0458, ext. 415 (in Arizona)

Bibliographic Retrieval Services (BRS)

Bibliographic Retrieval Services (BRS) offers information in such areas as science and medicine, business and finance, reference, education, the social sciences and humanities, and energy and environment.

In general, BRS costs more than Knowledge Index, but the information is probably worth the extra cost if you're doing research of a highly technical nature. And like Knowledge Index, you can access BRS through either Tymnet or Telenet. To find out more about BRS, contact

Bibliographic Retrieval Services
1200 Route 7
Latham, NY 12110
Telephone: 800-833-4707

Math Checker

14

Mary Teaff taught science, not math. But some of her students were impeded in their progress by problems with basic arithmetic, so she used the Math Checker program, described in this chapter, to sharpen their math skills. Mary discovered that the program can help students with different math strengths and weaknesses. For instance, a student strong in multiplication but weak in division could select multiplication tests more difficult than those in division. (The program's flexibility also meant that students from elementary through high school could use it for math practice.)

ABOUT THE MATH CHECKER PROGRAM

The Math Checker program tests students on their math abilities in four areas:

- Addition
- Subtraction
- Multiplication
- Division.

To match the student's capabilities, four levels of difficulty can be specified within each math area; they differ by the size of the positive-integer operands—the numbers on which the operations are performed.

Each time a student takes a test, ten problems are presented, one at a time. If the student's answer to a problem is correct, a message stating so is displayed; if the answer is incorrect, an appropriate message is displayed, followed by the correct answer. At the end of each 10-problem test, the student is told how many correct answers were entered.

CONNECTING THE HARDWARE

This BASIC program can easily be used with Model 100 with 8K of RAM. No hardware connections are required unless you want to save the program on cassette tape.

SETTING UP THE SOFTWARE

To type in the BASIC program MATHCK, move the Model 100 Main Menu cursor to the word BASIC and press ENTER. BASIC will display copyright information and the OK prompt, followed by a blinking cursor. Type in the program just as it is listed below. Be sure to enter the line numbers (the numbers 5, 10, 20, 30, and so on) at the beginning of each line and end each line by pressing ENTER.

```
5 ' *** Math Checker -- 1983 Copyright Sayre &
   Erickson ***
10 A=RND(-VAL(RIGHT$(TIME$,1)))
20 CLS
```



```
30 PRINT@ 8, "Welcome to Math Checker"
40 PRINT@ 49, "Do you want to test"
50 PRINT@ 91, "1) Addition"
60 PRINT@ 131, "2) Subtraction"
70 PRINT@ 171, "3) Multiplication"
80 PRINT@ 211, "4) Division"
90 PRINT@ 251, "5) End session"
100 PRINT@ 291, "Press <1>-<5>";
110 A$=INKEY$
120 IF A$="5" THEN MENU
130 IF A$ > "4" OR A$ < "1" THEN 110
140 GOSUB 160
150 GOTO 20
160 CLS
170 INPUT "What level (1-4)";LV
180 IF LV > 4 THEN 170
190 LV=10^LV
200 RT=0
210 FOR I=1 TO 10
220 O1=FIX(RND(1)*LV)
230 O2=FIX(RND(1)*LV)
240 ON VAL(A$) GOSUB 320,350,400,430
250 INPUT AN
260 IF FIX(AN)=FIX(RS) THEN RT=RT+1: PRINT "That's
    correct!" ELSE PRINT "Sorry, the correct answer
    was";FIX(RS)
270 NEXT I
280 PRINT "You were correct on";RT;"out of"
290 PRINT "    10 problems"
300 LINE INPUT "Press <ENTER> to try again";A$
310 RETURN
320 PRINT O1; " + ";O2;" = ";
330 RS=O1+O2
340 RETURN
350 IF O1 > O2 THEN 370
360 A=O1: O1=O2: O2=A
370 PRINT O1;" - ";O2;" = ";
380 RS=O1-O2
390 RETURN
400 PRINT O1;" x ";O2;" = ";
410 RS=O1*O2
420 RETURN
430 RS=O1
440 O1=O1*O2
450 PRINT O1;" / ";O2;" = ";
460 RETURN
```

Once you have typed in the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "MATHCK" ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100 (see the owner's manuals for your recorder and the Model 100 for details on setting the volume control). Simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Math Checker program is loaded into memory, then type

CSAVE "MATHCK" ENTER

When the BASIC OK prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as MATHCK.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line containing the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, save what you have typed. When you're ready to continue typing the program, you must first load the previously typed portion. You then type the rest, again saving it all under the same name.

HOW MATH CHECKER WORKS

The Math Checker program uses the Random (RND) function to get the numeric value of the operands and determines the magnitude of the number according to the level of difficulty chosen. Since the RND function returns a double-precision number between 0 and 1, the program must multiply this number by the value 10 to the "levelth" power (10^{level}). It then truncates the value so that the student won't have to deal with quirks in the way the computer does arithmetic.

- For addition or multiplication, the program simply requests the student to supply the sum or product of the two operands.
- For subtraction, the program asks the student the difference

between the larger operand and the smaller (this prevents negative results).

- For division, the program makes the first operand equal to the product of the two operands, and the result is equal to the original value of the first operand. This guarantees that the result of the equation will be a whole number.

Note that the first thing the program does is to “reseed” the random number generator with the negative value of the current seconds of the system time. As a result, the same series of problems will not occur, on average, more often than one out of every 60 times.

Variables used by the Math Checker program are defined in Table 14-1.

USING MATH CHECKER

To run the program, position the Main Menu cursor to the word MATHCK.BA and press ENTER. The program will then display the Math Checker main menu. (See Figure 14-1.) When the student has pressed a number key from 1 to 5, the screen clears and the program asks for the level of difficulty:

What level (1-4)?

The level of difficulty corresponds to the size of the operands: the numbers to be added, subtracted, multiplied or divided.

- Level 1 operands range from 0 to 10
- Level 2 operands range from 0 to 100

Table 14-1. Math Checker Program Variables

Variables	Definition
A	Dummy value used when reseeding
A\$	RND and swapping operands
AN	The response to a prompt
LV	The student's answer to an equation
O1	The level of difficulty
O2	The first operand of the equation
RT	The second operand of the equation
RS	The number of correct answers
	The correct answer to an equation

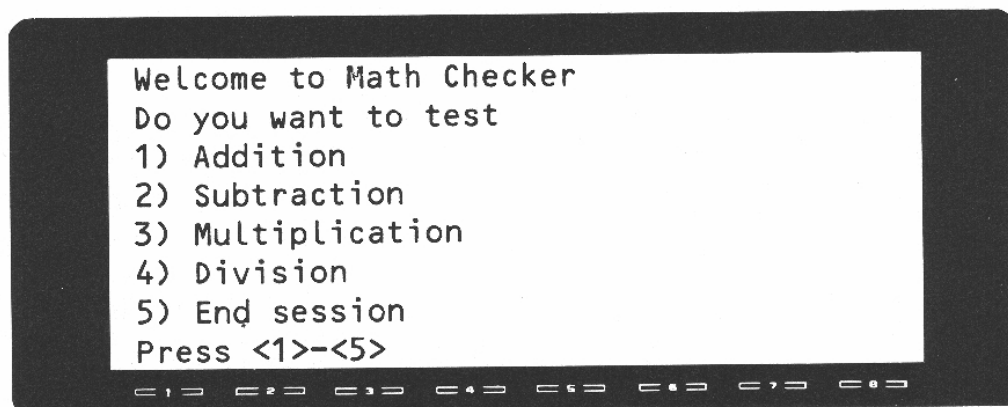


Figure 14-1. Math Checker main menu

- Level 3 operands range from 0 to 1000
- Level 4 operands range from 0 to 10,000

For instance, if a student specifies addition with a difficulty level of 1, no numbers greater than 10 will be added. Thus, the problem $15 + 20$ would never occur. Nor, if the student chose addition with a difficulty level of 3, could the problem $5000 + 2000$ be displayed. (An exception is division, where the divisor and the quotient are in the same level range.)

After the student selects a level of difficulty, Math Checker gives the student ten random equations, one at a time. The student types in the answer to the problem and then presses ENTER. Math Checker compares the student's answer to the correct answer. If the student's answer is correct, the message

That's correct!

appears and a new problem is displayed. If the student's answer is incorrect, the program displays the message

Sorry, the correct answer was _____

and displays the correct answer in the blank. Math Checker then gives the student the next equation.

After the ten problems have been done, Math Checker tells the student how many correct answers were entered in the session. (See Figure 14-2.)

A student who wants to try ten more problems need only press ENTER, and the Math Checker main menu will reappear. For

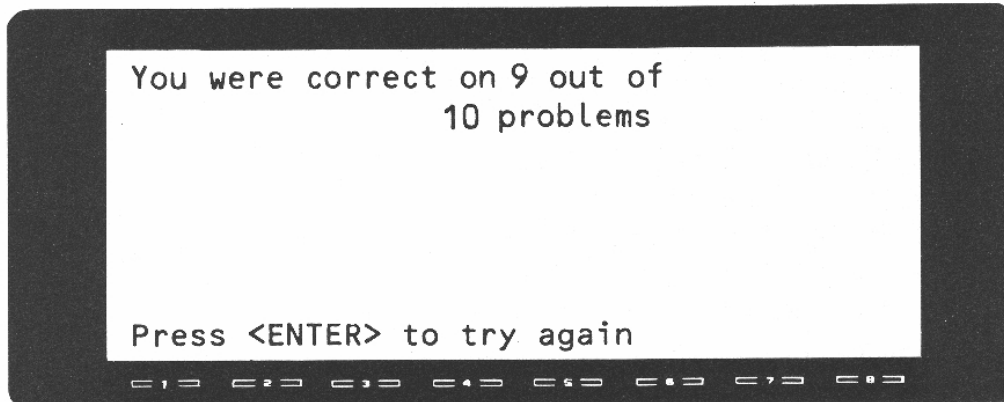


Figure 14-2. Display of test score with results

example, when Brian Garr wanted to take a division test, he followed this procedure:

When the Math Checker main menu appeared, he typed

4

The program asked him for a level of difficulty. He typed

2 ENTER

The first problem that appeared was

$209 / 11 = ?$

He used a piece of scratch paper to help him figure the answer, then typed

19 ENTER

The message

That's correct!

appeared and the next problem was displayed:

$1554 / 37 = ?$

When he typed in his answer

36 ENTER

Math Checker replied

Sorry, the correct answer was 42

After Brian had done ten problems, the program displayed the message shown in Figure 14-2.

OTHER ACTIVITIES

You might add subroutines to the program that let the student practice with percentages or fractions. Just add another option to the Math Checker main menu and the subroutine at the end of the program.

If you want the practice session printed out on a parallel printer, change all PRINT statements in the program to LPRINT.

Managing The Classroom

15

A daily teaching load of six classes, each having 30 students, meant that if she didn't plan right, Mary Teaff could end up grading as many as 180 assignments in a single day. She didn't mind doing so—that was part of teaching. But she did mind the clerical duties like figuring class averages, because they took her away from working one-to-one with the students.

The Classroom Manager routine provided in this chapter went a long way toward freeing Mary from those clerical duties. Furthermore, the program provided her with valuable information that she wouldn't otherwise have had time to compile and that, in the long run, helped her be a better teacher.

ABOUT THE CLASSROOM MANAGER PROGRAM

The Classroom Manager program helps you keep track of student performance by providing a means of recording students' grades on assignments and exams and by averaging those grades for you. When you need to, you can retrieve the grades of a particular test or student. You can even keep the records for each class separate from those of the others, and you can keep all your records in the Model 100's memory.

The Classroom Manager not only helps you become a more efficient teacher, but it can help your students as well. Since the program provides for printed copies of a student's progress assignment by assignment (as well as in relation to the other students in the class), students can see where they need to work harder.

To use the Classroom Manager routine, you need only type in one BASIC program. Then type in a TEXT .DO file that lists the roll of students, separated by class. The BASIC program automatically creates other TEXT files to store the grades for the various assignments. Furthermore, individual and class averages are automatically calculated, as is the class standard deviation. This information is useful for establishing curves (see "Other Activities," later in this chapter).

CONNECTING THE HARDWARE

To use this program, you must have a parallel printer connected to your Model 100. Before making the connection, be sure the power to both units is *off*. Proper connection requires that you also use the Radio Shack Model 100 Parallel Printer Cable.

Since a number of TEXT data files will also be used, we strongly recommend that you use a cassette recorder to store data on tape so that you don't run out of memory.

Finally, while a Model 100 with 8K of RAM can accommodate the BASIC program CLASS.BA, it can restrict the size and number of TEXT data files. Therefore, we recommend you use the Classroom Manager routine with a Model 100 having at least 16K of RAM.

SETTING UP THE SOFTWARE

CLASS (short for "Classroom Manager") is a BASIC program that interacts with several TEXT files. You'll need to type in both

the BASIC program and a TEXT file that contains a list of student names. CLASS will read the TEXT file and will create additional TEXT files as needed.

The BASIC Program CLASS.BA

To type in the BASIC program CLASS, move the Model 100 Main Menu cursor to the word BASIC and press ENTER. BASIC will display copyright information and the OK prompt and below them a blinking cursor. Type in the program just as it is listed here. Be sure to begin each line with a number (the numbers 10, 20, 30, and so on) and to end each line by pressing ENTER.

The program has been divided into sections called modules. Following the listing of the program there are descriptions of how each module works. If you don't care how the program works—you only want it to work—you can skip these descriptions.

Once you have typed in the program, check it line by line for errors. To do so, first save it in the Model 100's memory by typing

SAVE "CLASS" ENTER

We also suggest that you save the program onto cassette tape at this time. Connect a cassette recorder to the Model 100 (see the owner's manuals for your recorder and the Model 100 for details on setting the volume control). Simultaneously press the recorder's RECORD and PLAY buttons. Be sure that you're in BASIC and that the Classroom Manager program is loaded into memory, then type

CSAVE "CLASS" ENTER

When the BASIC prompt and blinking cursor return, press F8 to return to the Model 100 Main Menu. The program will be listed there as CLASS.BA.

The best way to check the program for errors is to run it. If there are any errors, the Model 100 will tell you the number of the line containing the mistake. Simply retype the line (line number and all) the way it is listed in this chapter, and then execute the program again.

If you can't type in the entire program at one sitting, save what you have typed. When you are ready to continue typing the

program, you must first load the previously typed portion. You then type the rest, again saving it all under the same name.

```

10 ' *** Classroom Manager -- 1983 Copyright Sayre &
    Erickson ***
20 'Module 1 -- Initialization
30 MAXFILES=3
40 ON ERROR GOTO 1770
50 DIM SS(100)
60 CLS
70 PRINT@ 5, "Welcome to the Classroom Manager"
80 PRINT@ 51, "Your options are:"
90 PRINT@ 131, "1) Record grades"
100 PRINT@ 171, "2) Retrieve grades"
110 PRINT@ 211, "3) End session"
120 PRINT@ 288, "Select <1>, <2>, or <3>";
130 A$=INKEY$: IF A$="" THEN 130
140 ON VAL(A$) GOSUB170,400,1750
150 GOTO 60
160 'Module 2 -- Input data into grade report file
170 CLS
180 INPUT "Class identifier";CI$
190 IF LEN(CI$) <> 3 THEN 180
200 INPUT "Grade report title";GT$
210 GT$=LEFT$(GT$,20)
220 INPUT "Grade report number (01-99)";GN
230 IF GN < 10 THEN GN$="0" + RIGHT$(STR$(GN),1) ELSE
    GN$=RIGHT$(STR$(GN),2)
240 INPUT "How many points were possible";PP
250 FF=0
260 OPEN "NAM" + CI$ FOR INPUT AS 1
270 OPEN "G" + CI$ + GN$ FOR OUTPUT AS 2
280 PRINT#2,PP,GT$
290 TP=0: CT=0
300 CLS
310 IF EOF(1) THEN 370
320 INPUT#1,LN$,FN$,ID$
330 PRINT LEFT$(LN$,15);", ";LEFT$(FN$,15);" ";ID$
340 INPUT "Score";SC
350 PRINT#2,SC
360 CLS: GOTO 300
370 CLOSE
380 RETURN
390 'Module 3 -- Retrieve grades
400 CLS
410 FOR I=1 TO 100: SS(I)=0: NEXT I

```

```

420 INPUT "Class identifier";CI$
430 IF LEN(CI$) <> 3 THEN 420
440 INPUT "Summarize by <A>ssignment or <S>tudent";SM$
450 IF SM$="A" OR SM$="a" THEN GOSUB 1200 ELSE IF
    SM$="S" OR SM$="s" THEN GOSUB 480 ELSE 440
460 RETURN
470 'Module 3-A -- Summarize for a student
480 PRINT "Which student (last name,first name)"
490 INPUT LN$,FN$
500 LN$=LEFT$(LN$,15): FN$=LEFT$(FN$,15)
510 INPUT "Output to the <S>creen or <P>rinter";OP$
520 IF OP$="S" OR OP$="s" THEN PF=-1 ELSE IF OP$="P" OR
    OP$="p" THEN PF=0 ELSE GOTO 510
530 FF=0
540 OPEN "NAM" + CI$ FOR INPUT AS 1
550 CT=1
560 IF EOF(1) THEN GOTO 1150
570 INPUT#1,LI$,FI$,ID$
580 IF LI$ <> LN$ OR FI$ <> FN$ THEN CT=CT+1: GOTO 560
590 CLOSE 1
600 TS=0: TP=0
610 IF NOT PF THEN 670
620 CLS
630 PRINT LN$;"", ";FN$;" ";ID$
640 PRINT "Score on "
650 PRINT@ 240, "Press <ENTER> for next score";
660 GOTO 690
670 OPEN "LPT:" FOR OUTPUT AS 2
680 PRINT#2,LN$;"", ";FN$;" ";ID$
690 FOR I=1 TO 99
700 IF I < 10 THEN GN$="0" + RIGHT$(STR$(I),1) ELSE
    GN$=RIGHT$(STR$(I),2)
710 FF=1
720 OPEN "G" + CI$ + GN$ FOR INPUT AS 1
730 INPUT#1, PP,GT$
740 IF LEN(GT$) < 20 THEN GT$=GT$ + " ": GOTO 740
750 TP=TP+PP
760 J=1: VS=0
770 IF EOF(1) THEN 900
780 INPUT#1,SC
790 IF SC >= 0 THEN SS(J)=SS(J) + SC: VS=VS+1
800 IF J <> CT THEN 880
810 IF PF THEN 850
820 PRINT#2,GT$;TAB(10);
830 PRINT#2,USING"###\ \###";SC;" / ";PP
840 GOTO 880
850 PRINT@ 49,GT$;":";

```

```

860 PRINT@ 66,USING"###\ \###";SC;" / ";PP
870 LINE INPUT A$
880 J=J+1
890 GOTO 770
900 CLOSE 1
910 NEXT I
920 J=J-1
930 TS=0: SM=0
940 FOR I=1 TO J
950 IF SS(I) >= 0 THEN TS=TS + SS(I)
960 NEXT I
970 CA!=TS/VS
980 FOR I=1 TO J
990 IF SS(I) >= 0 THEN SM=SM + (SS(I)-CA!)^2
1000 NEXT I
1010 SD!=SQR(SM/VS)
1020 IF NOT PF THEN 1100
1030 CLS
1040 PRINT LN$," ", ";FN$;" ";ID$
1050 PRINT "Total points: ";SS(CT);"/";TP
1060 PRINT "Class average: ";CA!;"/";TP
1070 PRINT "Class standard deviation: ";SD!
1080 PRINT: LINE INPUT "Press <ENTER> to return to
      menu";A$
1090 GOTO 1130
1100 PRINT#2, "Total points: ";SS(CT);"/";TP
1110 PRINT#2, "Class average: ";CA!;"/";TP
1120 PRINT#2, "Class standard deviation: ";SD!
1130 CLOSE
1140 RETURN
1150 PRINT "I can't find ";LN$," ", ";FN$;" ""
1160 LINE INPUT "Press <ENTER> to return to menu";A$
1170 CLOSE
1180 RETURN
1190 'Module 3-B -- Summarize for a grade report
1200 INPUT "Grade report number (01-99)";GN
1210 IF GN < 10 THEN GN$="0" + RIGHT$(STR$(GN),1) ELSE
      GN$=RIGHT$(STR$(GN),2)
1220 FF=2
1230 OPEN "NAM" + CI$ FOR INPUT AS 1
1240 FF=3
1250 OPEN "G" + CI$ + GN$ FOR INPUT AS 2
1260 INPUT#2,PP,GT$
1270 INPUT "Output to the <S>creen or <P>rinter";OP$
1280 IF OP$="S" OR OP$="s" THEN PF=-1 ELSE IF OP$="P"
      OR OP$="p" THEN PF=0 ELSE 1270
1290 IF PF THEN 1340

```

```

1300 OPEN "LPT:" FOR OUTPUT AS 3
1310 PRINT#3,TAB(30);GT$;PRINT#3,""
1320 PRINT#3,"Name";TAB(33);"ID";TAB(18);"Score":
      PRINT#3,""
1330 GOTO 1370
1340 CLS
1350 PRINT@ 40,"Score on ";GT$;": ";
1360 PRINT@ 240,"Press <ENTER> for next score";
1370 J=1: TS=0: VS=0
1380 IF EOF(1) THEN 1530
1390 INPUT#1,LN$,FN$,ID$
1400 INPUT#2,SS(J)
1410 IF SS(J) >= 0 THEN TS=TS + SS(J): VS=VS+1
1420 IF PF THEN 1480
1430 IF (LEN(LN$) + LEN(FN$)) < 30 THEN FN$=FN$ + " ":
      GOTO 1430
1440 IF LEN(ID$) < 10 THEN ID$=ID$ + " ": GOTO 1440
1450 PRINT#3,LN$;",";FN$;TAB(5);ID$;TAB(10);
1460 PRINT#3,USING"###";SS(J)
1470 GOTO 1510
1480 PRINT@ 0,LN$;",";FN$;" ";ID$;
1490 PRINT@ (51+LEN(GT$)),USING"###\ \###";SS(J);" /
      ";PP
1500 LINE INPUT A$
1510 J=J+1
1520 GOTO 1380
1530 J=J-1
1540 CA!=TS/V$
1550 SM=0
1560 FOR I=1 TO J
1570 IF SS(I) >= 0 THEN SM=SM + (SS(I)-CA!)^2
1580 NEXT I
1590 SD!=SQR(SM/V$)
1600 IF PF THEN 1680
1610 PRINT#3,"": PRINT#3,"Total points
      possible";TAB(36);
1620 PRINT#3,USING"###";PP
1630 PRINT#3,"Class average";TAB(44);
1640 PRINT#3,USING"###.##";CA!
1650 PRINT#3,"Class standard deviation";TAB(33);
1660 PRINT#3,USING"###.##";SD!
1670 GOTO 1720
1680 CLS
1690 PRINT "Class average: ";CA!;"/";PP
1700 PRINT "Class standard deviation: ";SD!
1710 PRINT: LINE INPUT "Press <ENTER> to return to
      menu";A$

```

```

1720 CLOSE
1730 RETURN
1740 'Module 4 -- Return to Model 100 Main Menu
1750 MENU
1760 'Module 5 -- Error processing
1770 IF ERR <> 52 THEN PRINT "Error";ERR;"in";ERL: STOP
1780 IF FF=1 THEN RESUME 920
1790 IF FF=0 OR FF=2 THEN PRINT "I can't find the
      names' file for ";CI$ ELSE PRINT "I can't find
      the grade file for grade report ";GN$
1800 INPUT "Do you want to see a list of the      RAM
      files";A$
1810 IF A$="Y" OR A$="y" THEN FILES
1820 INPUT "Press <ENTER> to return to menu";A$
1830 RESUME 60

```

How CLASS.BA Works

This section describes how the routines, identified as modules in the program, work.

Module 1: Initialization and Classroom Manager Main Menu

This routine, lines 20 through 150, drives the others. It initializes the number of open files to three, defines the error routine, and defines the scores array SS to 101 elements (0-100). It then displays the Classroom Manager main menu and waits for you to press number key (*not* function key) 1, 2, or 3.

Module 2: Input Data Into a Grade Report File This routine, lines 160 through 380, lets you create a grade report file. It asks for the class identifier, the title and number of the grade report, and the number of points possible on the grade report. Note that the program truncates the grade report title to a maximum of 20 characters.

The program creates a grade report TEXT file, naming it by concatenating "G" and the class identifier and grade report number and then adding the extension .DO. Once it has opened the file, the program writes a heading made up of the number of points possible and the grade report title.

The program then opens the names file NAM.DO, corresponding to the class identifier, presents you with each name in turn, and asks you for the student's grade. (To keep the prompts neatly

displayed, the program truncates the first and last names to 15 characters or fewer.)

When it reaches the end of the NAM.DO file, the program closes both that and the new grade report file and returns to the Classroom Manager main menu.

Module 3: Retrieve Grades This routine, lines 390 through 460, retrieves grades from the grade report files. After prompting for the class identifier, the program asks you whether you want to summarize for an individual student or for an individual test. According to your response, the program calls either Module 3-A or 3-B.

Module 3-A: Summarize for a Student This routine, lines 470 through 1180, summarizes all the grades for a particular student. It prompts first for the student name and then whether you want the output displayed on the screen or printed out. The module locates the student's name in the NAM.DO file and assigns this position to CT. If the program can't find the requested student name, it reports this and returns to the Classroom Manager main menu.

The module then reads in grade report files sequentially, from 01 to 99. As it reads in the scores for each report, it stores them in student grade slots, $SS(i)$. When the module reaches the entry for the requested student, it prints (to screen or printer as specified) the grade report title, the maximum points possible, and the points achieved by the student. The module then reads in the rest of the file, adding that student's other scores into appropriate slots of $SS(i)$.

The module continues to open grade report files until it either reaches number 99 or runs out of files, at which time it breaks out to the error routine (Module 5) and returns to line 870. At this point, the routine sums up the total for each student ($SS(i)$) and then finds the class average and the standard deviation. It reports these three sets of data. Finally, the routine returns to Module 3.

Module 3-B: Summarize for a Grade Report This routine, lines 1190 through 1730, summarizes the scores for a particular grade report. It prompts first for the grade report number and then whether you want the output displayed on the screen or printed out.

It reads in names from the names file and the corresponding scores from the appropriate grade report file. As it prints the names and scores to screen or printer, it also stores the scores in $SS(i)$. When the module has read in all of the names and scores, it calculates the average grade and standard deviation on the grade report. Finally, the routine exits to Module 3.

Module 4: Return to the Model 100 Main Menu This two-line routine, lines 1740 through 1750, ends the program and returns control to the Model 100 Main Menu.

Module 5: Error Processing This routine, lines 1760 to the end of the program, handles any errors in the program. Generally, the program calls this routine in either of two eventualities: if you have tried to access a file that doesn't exist, the module tells you that it couldn't find it and gives you the option of listing the current RAM files before returning to the Classroom Manager main menu. Or if Module 3-A has run out of grade report files and tries to access a file that doesn't exist, the program simply returns to a point in Module 3-A where it then calculates the average and standard deviation for the files that it has read in.

The variables used by the Classroom Manager program are defined in Table 15-1.

The TEXT File NAM.DO

The Classroom Manager program keeps track of several different classes by using a TEXT .DO file to differentiate among them. Each class must have a separate roster that contains the students' names and ID numbers. The Classroom Manager program requires that each class list *must* begin with the prefix NAM, followed by a three-character class identifier in the format

NAM *class identifier* .DO

(The Model 100 automatically adds the extension .DO.) This identifier can be any string you want—for example, HIS for a history class or 101 for English 101. When listed on the Model 100 Main Menu, typical class list files might look like this:

NAMSCI.DO	for "names" of a "science" class
NAMHIS.DO	for "names" of a "history" class

NAMMTH.DO for "names" of a "math" class
 NAM101.DO for "names" of section "101."

Don't forget that each class must have a separate "names" file. Once you've assigned a three-character class identifier, *remember it* or write it down because before you can record or retrieve grades you must type it in (just the three characters, not the prefix

Table 15-1. Classroom Manager Program Variables

Variable	Definition
A\$	Response to various prompts
CA!	Class average
CI\$	Class identifier (a three-character string)
CT	Relative entry count of a name in a names file
FF	File flag (signifies to the error routine which OPEN statement may have caused an error)
FN\$	First name of student (15 significant characters)
GN	Numeric version of grade report number
GN\$	String version of grade report number (two-character string)
GT\$	Grade report title (20 significant characters)
I	Counter
ID\$	Student ID (10 significant characters)
J	Counter
LN\$	Last name of student (15 significant characters)
OP\$	Response to output device prompt
PF	Print flag (Boolean "true" for output to screen; "false" for output to printer)
PP	Total points possible on a grade report
SC	Student score on a test
SD!	Class standard deviation
SM	Sum of student scores ($SS(i)$)
SM\$	Response to "summarize by" prompt
SS(i)	Student grades
TP	Total points possible on a grade report
TS	Total scores achieved by a student
VS	Count of valid (non- "-1") scores

NAM). (See "Recording Grades" and "Retrieving Grades" later in this chapter.)

The NAM.DO file must be created before you can use the Classroom Manager program. To create a NAM.DO file, position the Model 100 Main Menu cursor on the word TEXT and press ENTER. When TEXT asks you

File to edit?

type in NAM and the three-character identifier and then press ENTER. For instance, for her Physics class, Mary Teaff typed in

NAMPSC ENTER

After you press ENTER, begin entering student names and ID numbers in the following manner:

- Type a student's *last name*
- Type a comma (,)
- Type a student's *first name*
- Type a comma (,)
- Type the ID number
- Press ENTER.

For instance,

Waisner, Patty, 1501 ENTER

Drury, Rene, 1621 ENTER

Garr, Brian, 1434 ENTER

The Classroom Manager program does not require any specific order of entry. You may enter them alphabetically, by ascending ID number or whatever system you choose. When you have entered all of the names and numbers for a particular class, press F8 to return to the Model 100 Main Menu.

USING THE CLASSROOM MANAGER

Once you've created a NAM.DO file that contains a class roster, you can begin using the CLASS.BA program to record and calculate grades. To do this, position the Model 100 Main Menu cursor on the word CLASS.BA and press ENTER. The Classroom Manager main menu will appear. (See Figure 15-1.)

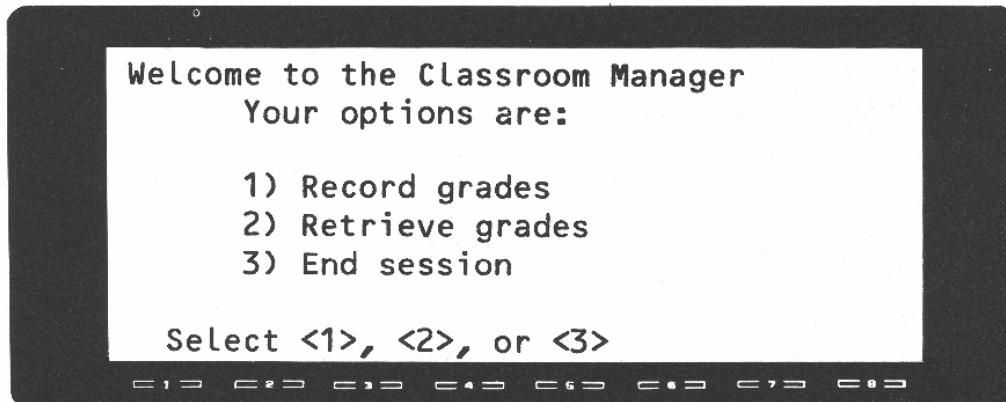


Figure 15-1. Classroom Manager main menu

Recording Grades

To record grades for a test, report, or homework assignment, press number key 1 (*not* the function key). The Classroom Manager will first ask you which class you want to record grades for. You should type in the three-character class identifier that you used to create a particular NAM.DO file. For instance, when Mary Teaff wanted to record grades for her Physics class (PSC) she typed

Class identifier? **PSC** ENTER

The program then asks for the title of the grade report. This title is a name that you can use to identify the grade data; for example, **Midterm** or **Jan 19 homework**. When entering the grades for her final exam, Mary typed

Grade report title? **FINAL** ENTER

After you enter the title, the program will then ask you for a grade report number. For the first report in the grade report sequence, type **01**, and for subsequent reports, **02**, **03**, and so on. (Do not skip a grade report number; that is, don't go from grade report number **04** to number **06**. The grade retrieval part of the program reads in grade report files by sequential order.)

For Mary's thirty-fifth, and final, grade of the semester, she typed

Grade report number (01-99)? **35** ENTER

Finally, Classroom Manager will ask you how many points were possible for this grade. Type in the maximum number of points that were possible for the current assignment. Since Mary's final was worth 100 points, she typed

How many points were possible? **100** ENTER

The Classroom Manager will then display the name of each student in this class (as listed in the appropriate NAM.DO file) and ask you for the score each got on this assignment; for instance,

Waisner, Patty 1501
Score?

Type in the student's grade and press ENTER. The next student's name will be displayed. When you have entered the score for the last student in the file, the program will return to the Classroom Manager main menu, where you can either record more grades, retrieve grade summaries, or return to the Model 100 Main Menu.

When you return to the Model 100 Main Menu, you'll find a new file listed there with the following name in the format:

G class identifier grade report number .DO

This TEXT file will contain all of the grades for the grade report number you typed in. For example, Mary's file was listed as GPSC35.DO:/G for "grades," PSC for "Physics," and 35 for "grade #35." Thus, you can have several G .DO files listed for *each* class; for instance,

GPSC01.DO
GPSC02.DO
GHIS01.DO
GBIO10.DO
GMTH05.DO

The Model 100 Main Menu has room for only 24 files, of which five are reserved for BASIC, TEXT, TELCOM, and the like, one more for CLASS.BA, and another for NAM.DO. Since you therefore have room for only 17 G .DO files, we recommend that you regularly store them on cassette tape, or you will quickly run out of room on the Main Menu. Be sure to label and date all cassette tapes to assure easy access to those files.

Retrieving Grades

Once you have entered one or more grade reports, you can retrieve the grades for

- A particular student
- A particular test
- All students on all tests.

To do this, select option 2 from the Classroom Manager main menu (Figure 15-1). When you do, the program will ask you which class:

Class identifier?

Type in the three-character class identifier that you previously assigned to the grade file you want to examine. For instance, when Mary was ready to examine the final grades on her Physics exam, she typed

Class identifier? **PSC** ENTER

After you have done so, the program asks whether you want to see how the entire class did on a particular test or how a particular student did on several tests. (See Figure 15-2.)

Summarizing by Assignment If you want to see the scores on a particular class assignment (say, homework or a test or report), type

A ENTER

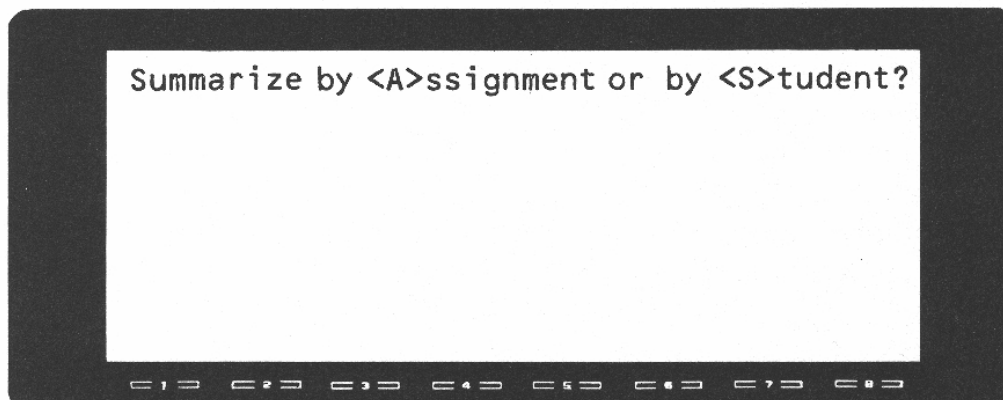


Figure 15-2. Program asking how to summarize (by entire class or by one student)

The program will then ask you which assignment (that is, which grade number) you want to examine:

Grade report number (01-99)?

Type in the number you previously assigned to this grade report. When Mary wanted to see how the class did on the final exam (grade #35), she typed

Grade report number (01-99)? 35 ENTER

Finally, the program asks

Output to the <S>creen or <P>rinter?

Type **S** and press ENTER to display the grades on the Model 100 display or **P** ENTER to print them out on a parallel printer.

Displaying Grades on Screen When you answer the OUTPUT prompt by typing **S** and pressing ENTER, the name and ID number of the first student in the NAM.DO file for the appropriate class are displayed. Directly below the student's name will be his or her score on the specified assignment, followed by the number of points possible. For instance, when Mary wanted to see how her students did on the final, she followed this procedure. The Model 100 display looked like that in Figure 15-3.

To see the next student's score, press ENTER. After Mary did so, a display similar to that in Figure 15-4 appeared.

When the score of the last student in the file has been displayed, the Classroom Manager will display the CLASS AVERAGE and CLASS STANDARD DEVIATION for the assignment. For an example, see Figure 15-5.

Printing Grades on a Printer Before selecting the printer option for the OUTPUT prompt, be sure a parallel printer is connected to and on line with your Model 100. If a printer is not, the computer will "lock-up." (If the computer does so, press BREAK.)

When you answer the OUTPUT prompt by typing **P** and pressing ENTER, the Classroom Manager will print out the names, ID numbers, and scores of each student in the appropriate NAM.DO file. The program will then print the total number of points possible on the assignment, followed by the class average, and finally the class standard deviation. (See Figure 15-6.)

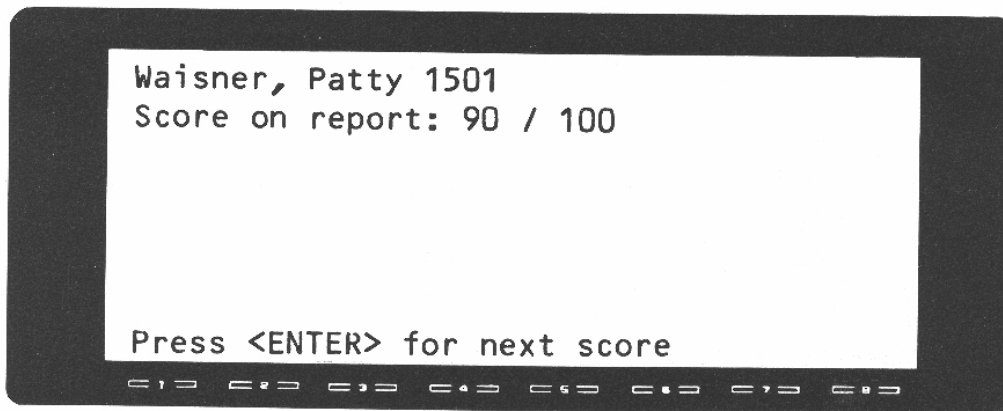


Figure 15-3 Screen with a student's test performance

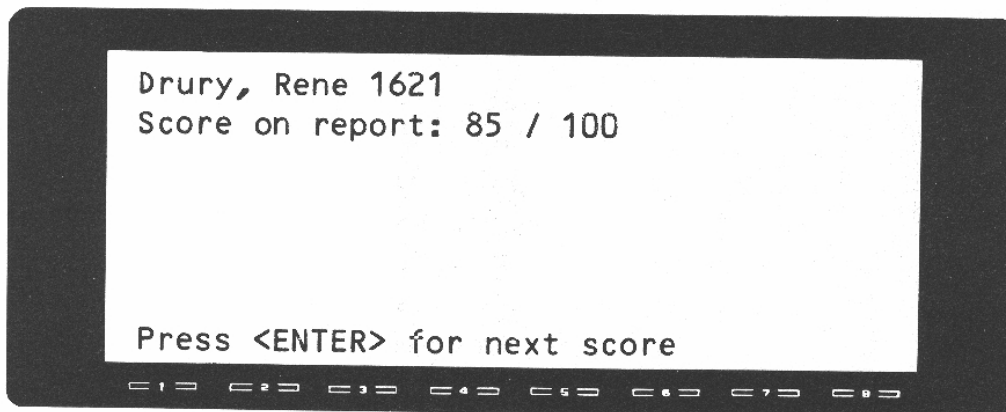


Figure 15-4. Screen with another student's test performance

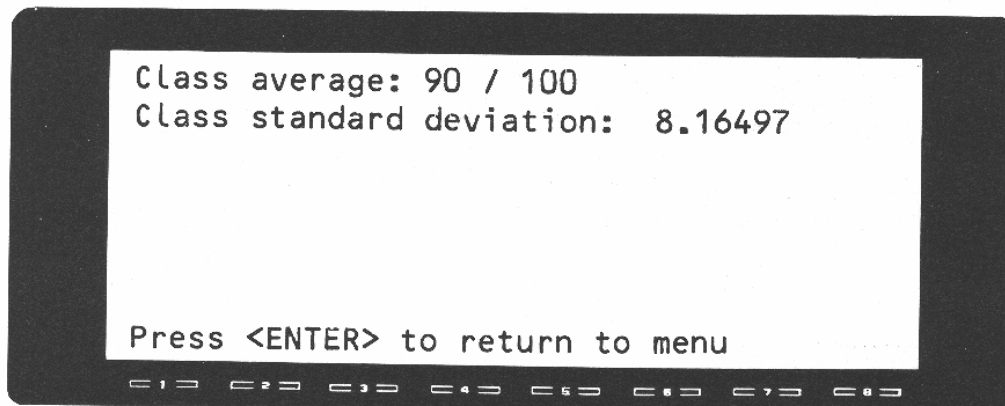


Figure 15-5. Display of class average and standard deviation

Name	ID	Score
Waisner, Patty	1501	100
Drury, Rene	1621	80
Garr, Brian	1434	90
Total points possible		100
Class average		90.00
Class standard deviation		8.16497

Figure 15-6. Printout of a NAM.DO file

Summarizing by Student If you want to see how a particular student did on each assignment, answer the SUMMARIZE prompt by typing

S ENTER

Type in the student's last name and then first name, separating the two by a comma. (The name must be typed in *exactly* as you entered it in the NAM.DO file, including upper- and lowercase letters.) For example, Mary typed in

Which student (last name,first name)

? **Garr,Brian** ENTER

Next the program asks

Output to the <S>screen or <P>rinter?

Type **S** and press ENTER to display the student's grades on the Model 100 display or **P** ENTER to print them out on a parallel printer.

Displaying a Student's Grades on Screen When you answer the OUTPUT prompt by typing **S** and pressing ENTER, the name and ID number of the first student in the NAM.DO file for the appropriate class will appear. Directly below the student's name

will be his or her score on the first assignment (identified by the grade report title), followed by the maximum number of points possible. To see how the student did on all subsequent assignments, press ENTER.

For instance, when Mary wanted to see how Brian Garr was performing in Physics, she followed this procedure, and the Model 100 display looked like that in Figure 15-7. When Mary pressed ENTER, the display changed to that in Figure 15-8.

After all of a given student's scores have been displayed, the Classroom Manager will display the total number of points the student earned as compared to the total number of points possible. This can then be compared to the class average and standard deviation. (See Figure 15-9.)

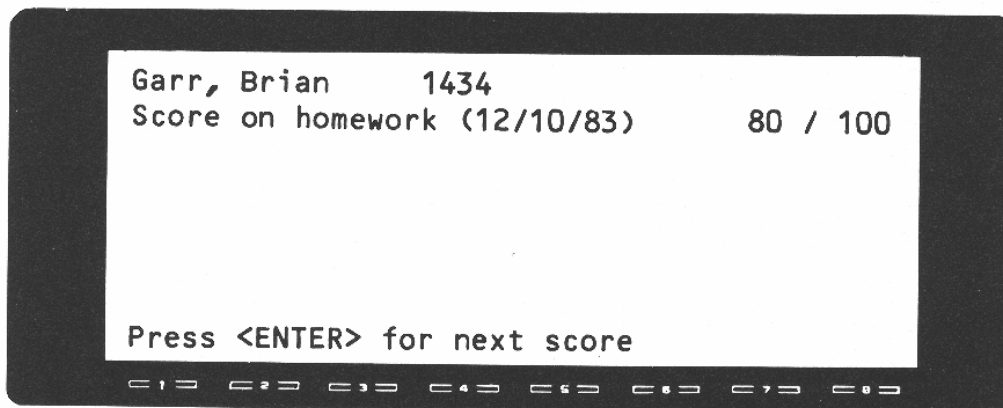


Figure 15-7. Screen with a student's grade report

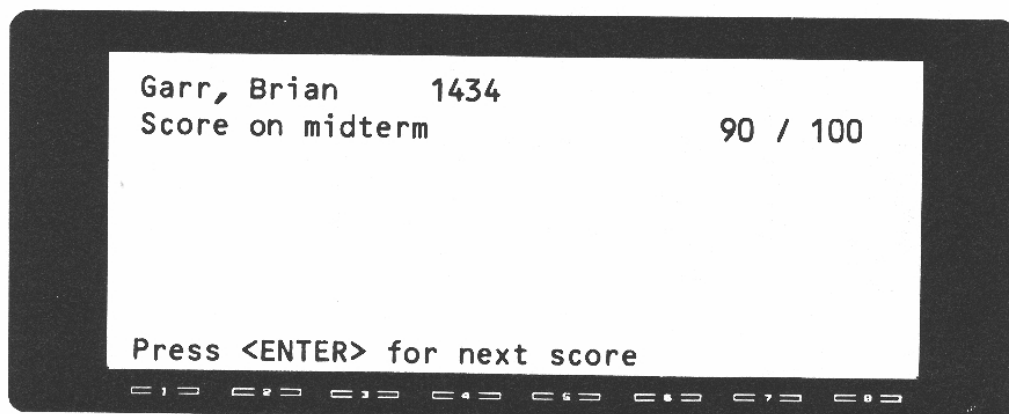


Figure 15-8. Screen of another grade report of same student

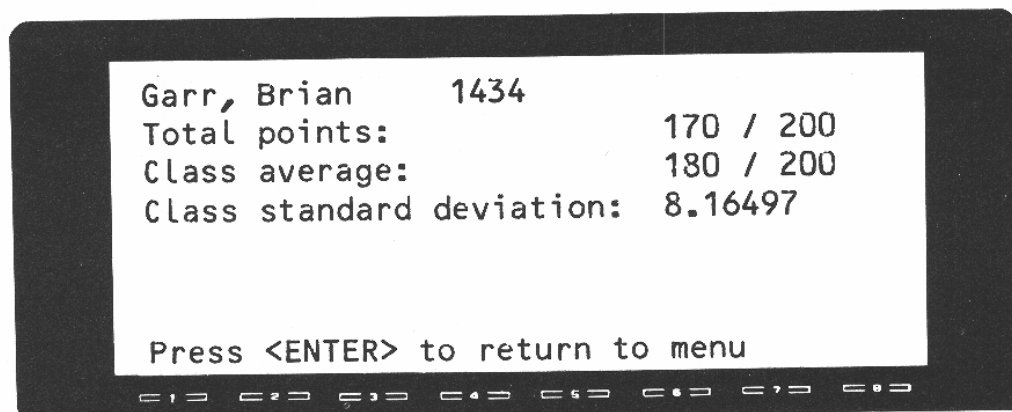


Figure 15-9. *Student's total score, with class average and standard deviation*

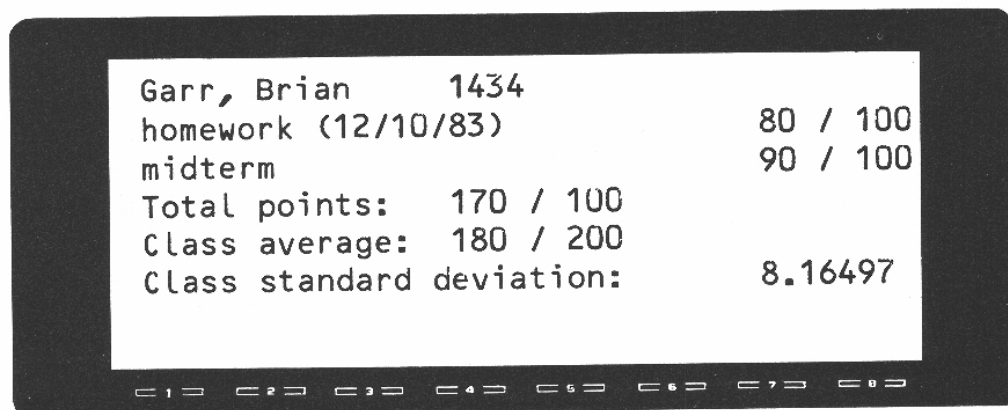


Figure 15-10. *Printout of a student's total score, with class average and standard deviation*

Printing Student Scores on a Printer Again, before selecting the printer option for the OUTPUT prompt, be sure a parallel printer is connected to and on line with your Model 100. If none is connected, the computer will "lock up."

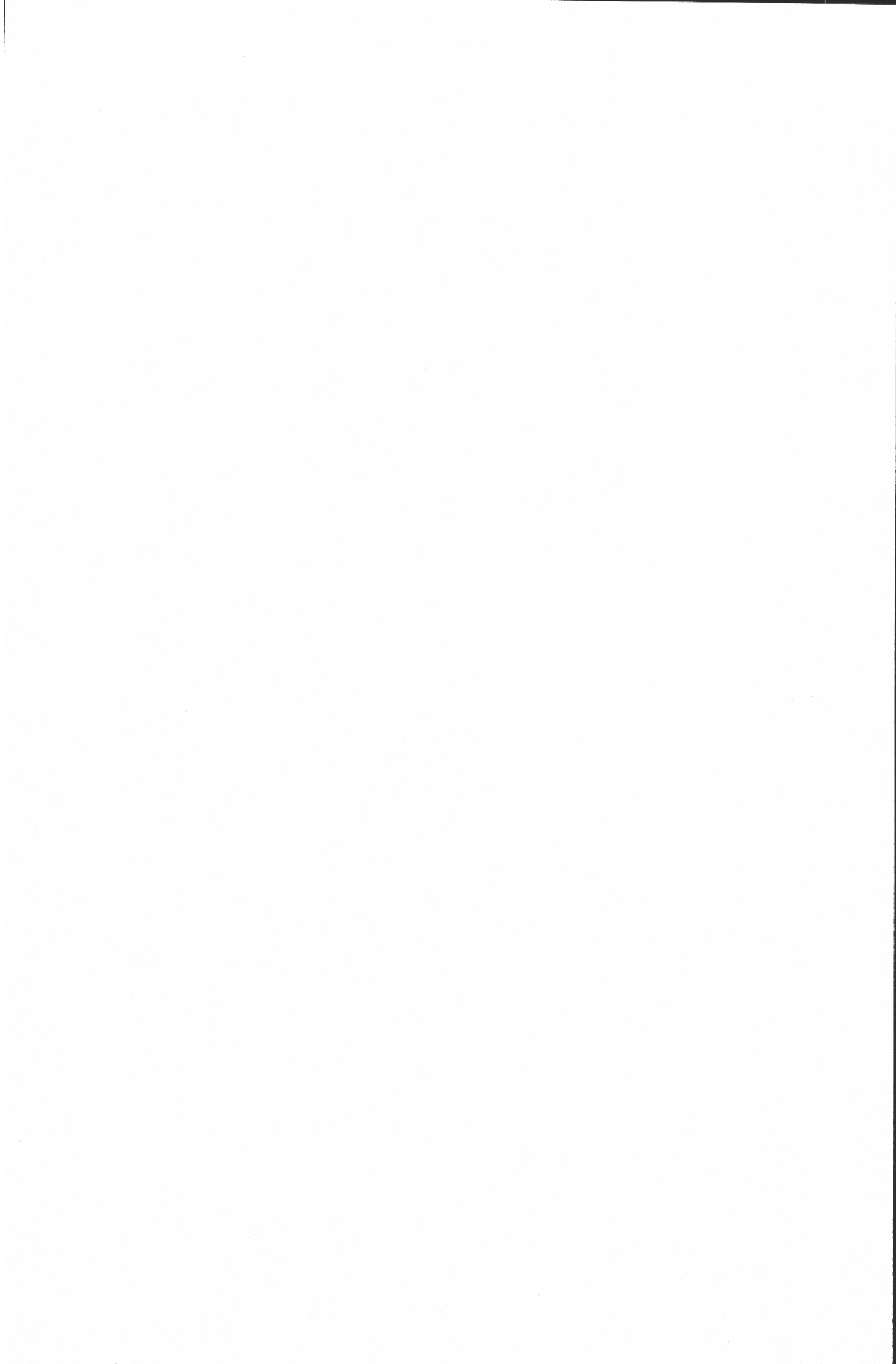
When you answer the OUTPUT prompt by typing **P** and pressing ENTER, the Classroom Manager will print out the student's name, ID number, and scores on each assignment. The program will then print the total number of points possible on the assignment, followed by the class average and the class standard deviation. (See Figure 15-10.)

OTHER ACTIVITIES

There are several more uses for the Classroom Manager program.

- Keeping students aware of their progress. You can use the gradebook program to keep each student up-to-date on his or her class progress. For example, once a week, you may want to print out and distribute the individual scores to each student.
- Establishing a "curve." You can use the class average and standard deviation to set up a grade curve. The size of the standard deviation is a good indication of how many points should make up a letter grade. By basing this value around the class average, you can come up with a grade scale. For example, if the class average was 71.5 and the class standard deviation was 13.0, then the grade scale will be

A's = 91 (highest score)
B's = 78-90
C's = 65-77
D's = 52-64
F's = 0-51



Giving a Lecture or Taking Notes

16

While Mary Teaff naturally found the Model 100 convenient for classroom management (such as recording grades), her ultimate goal was for her students to make even greater use of the Model 100 than she did. Mary already knew the Model 100 was a powerful teaching tool; her students routinely used theirs in the lab, recording the details and results of their experiments. Still, she was surprised at how valuable the Model 100 was when she was giving a lecture.

GIVING A LECTURE OR SPEECH WITH THE MODEL 100

In this chapter we suggest ways that the Model 100 can help take some of the work out of giving a speech. First, use the TEXT word processing program to write the lecture. To create a TEXT

file, move the Model 100 Main Menu cursor to the word TEXT and press ENTER. When asked

File to edit?

type in the name you want to assign to your speech (don't add an extension) and press ENTER. You can then begin typing the lecture. When you've finished writing and editing it, press F8 to return to the Main Menu, where the speech will be listed as a .DO file.

When you're ready to give the lecture, move the Main Menu cursor to the file name and press ENTER. The first eight lines of the speech will then appear on the screen. As you begin giving the speech, simply press the down arrow (↓) with your right hand to scroll down through the file as you read.

If you have trouble reading the single-spaced lines as they scroll by on the display, you can double-space the speech by pressing ENTER twice at the end of each line. Doing so creates a blank line between one line of text and the next. Four lines of double-spaced text should be readable at a glance. (See Figure 16-1.) When Mary wrote a lecture on, say, solar energy, she not only double-spaced for readability, she also emphasized certain words and concepts by capitalizing them. (See Figure 16-1 again.)

During the lecture, when Mary reached the last line of text on the screen, she pressed ↓ and the next line of the lecture appeared

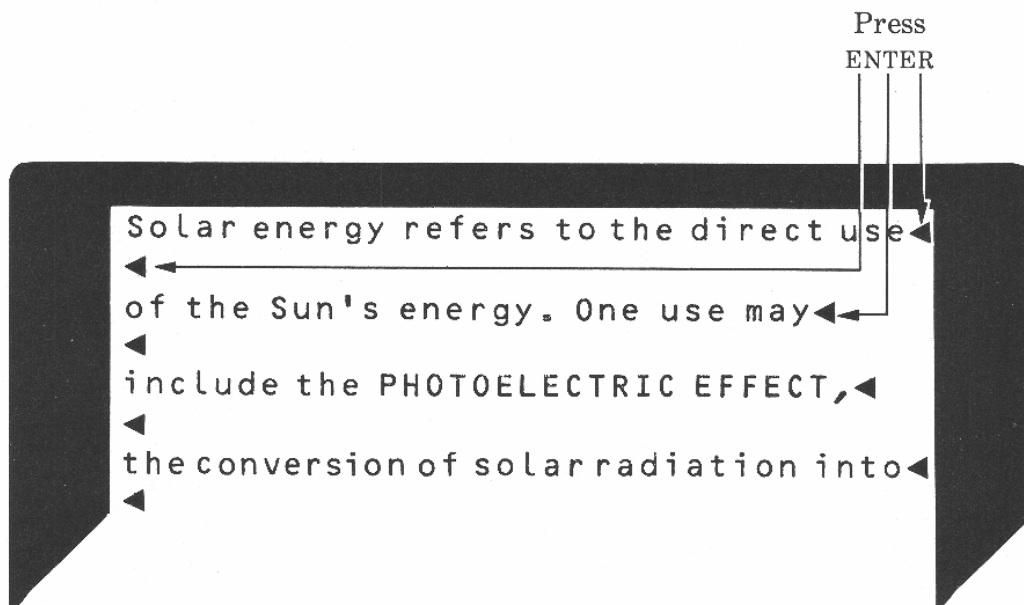


Figure 16-1. A double-spaced lecture text

on the screen (and the top line disappeared). When a student asked a question about a certain key word or concept (such as photoelectric effect), Mary just pressed CTRL ↑ to return to the top of the file, then pressed F1 for FIND and typed in **PHOTOELECTRIC** after the prompt

String:

The cursor immediately moved down to the part of the file that contained the specified word.

Since Mary knew she would be teaching the same class next year (and giving basically the same lecture), she saved the lecture on cassette tape, labeled the tape "Solar Energy Lectures," and cataloged it for the next fall. (We suggest that you also keep a printed copy of the speech just in case the tape gets "zapped.")

While preparing her lectures, Mary saved time by having the Model 100 do some research for her. For instance, while preparing the solar energy lecture, she connected the Model 100 to a telephone and called up an information service and accessed its encyclopedia (see Chapter 13). She downloaded information from the encyclopedia into a TEXT .DO file and used the TEXT program's "cut and paste" features to merge the research information with her lecture. (Direct quotes from newspapers and news services that are available from computer information services can likewise be downloaded into the Model 100 and merged into a speech, eliminating the chance of a misquote or inaccurate note taken by the speech writer.)

Mary always had an outline of the day's lecture on file in the Model 100 to make note taking easier for her students. Before class, she connected the computer to a printer, printed out the outline, made copies, and distributed them to the class. Since the outline was "filed" in the computer instead of a filing cabinet, it was easy for her to make last-minute changes to it so that it reflected exactly what the day's topic was.

TAKING NOTES WITH THE MODEL 100

It's even easier for students to take lecture notes than it is for teachers to give the lecture in the first place. All students have to do is set the Model 100 on their laps or desktops, create a TEXT file, and type.

If you're a student, we suggest that when you create the TEXT

file, you give it a name that is suggestive of the subject and date; for instance, for "science lecture notes on January 27th":

File to edit? SC1/27

The TEXT file will be listed on the Main Menu as SC1/27.DO.

In the evening, you can review and edit the notes if necessary. Before any editing, however, you'll probably want to keep an original copy of the notes just in case you have any questions about edited material. To do this, COPY the day's notes into another TEXT file by moving the cursor to the top of the original file, pressing first F7, then CTRL ↓, and finally F6. Next, open another TEXT file under a different name and press PASTE. You can then edit one of the files.

To free up memory for the next day's notes, it would be a good idea to save the notes on cassette tape at this time. Connect a cassette recorder, load the proper TEXT file, press F3, and type in the file name you want the notes saved under. Then go back to BASIC and kill the notes to free up memory.

When you want to print out the notes so you can study them, connect a parallel printer, load the TEXT file, and press SHIFT PRINT to print out the entire file. (You might want to refer to the word processing program in Chapter 6 of this book for a more structured printing format.)

Information Services



Computer-based information services can supply an almost unlimited variety and amount of information through a computer terminal. Usually all that is needed to access an information service is a computer (such as a Model 100), a modem, a telephone, and a communications software package. You might also want a printer to print out information you receive and some means of auxiliary information storage, such as a cassette tape recorder or disk drives.

Right away you can see why the Model 100 is a unique telecommunication device—except for the telephone, the printer, and the cassette recorder, everything else is built in.

The type of information and services you can get depends, of course, on the information service itself, but most supply

- Newspapers
- Reference materials
- Books and magazines
- Movie reviews
- Electronic shopping services
- Electronic banking services
- Games and entertainment.

For an information service to be really useful to you, it should be accessible through a local telephone number. While long-distance numbers are available for some services, any advantage they may offer is usually offset by higher telephone bills.

Most information services require a one-time registration fee. There are monthly charges, usually proportioned to how much time you are on-line with the service. There may also be a base time charge whether you use the service or not. The service can bill you directly or through a credit card account, such as VISA or MasterCard.

With information services, as with long-distance phone calls, some hours of the day and some days of the week are considered prime time and others are not. Prime-time hours of use are roughly from 7:00 A.M. to 5:00 P.M. Monday through Friday (that is, essentially, regular business hours). Charges can run up to \$25 per hour for prime-time use—and for some services several times higher than that. Non-prime-time hours of use are from 5:00 P.M. to 8:00 A.M. and 24 hours a day on Saturdays, Sundays, and holidays. Non-prime-time access usually costs as little as \$5 per hour.

Almost all information services assign you a unique, secret password that is needed for you to gain access to the system. This password is to be known only to you and to the service. (Since anyone knowing your password can go on-line and charge hundreds or thousands of dollars worth of expenses to your account, guard it just as you would your credit card numbers.)

Once you're on-line, most information services are menu-driven: you're presented with a menu of several options, and choosing an option will take you either to another menu of choices or to the particular information you desire. If the information you want is "buried" under several menus, most of your connect time (and

money) can be spent just getting to it. It is worth your while, then, to look in the index supplied to you when you subscribe to the service. There you can find the "page number" where the information you want is stored. By specifying this number, you can go directly to that information.

The local number you must phone to access a particular information service may or may not be the service's number. If it is not, you may have to access the service through a "telephone networking system." These systems don't provide information themselves; they simply serve as a broker, or connection, through which information passes on its way to you. You may have to pay a fee for use of the network in addition to the standard information service fees. Likewise, one information service can serve as an access "node" to another service. In such a case, you may receive two separate bills, one from each service, or a single bill from one service that has been billed by the other and passes these charges to you.

Most information services communicate with you at 300 baud. At that rate, about 30 to 40 characters will appear on your Model 100 screen every second. This may seem fast to you, but it's slow for computers; your Model 100 has the ability to communicate at over 2000 characters per second. However, few, if any, information services provide communication at this speed over standard telephone lines.

If you want a faster information exchange, some services have 1200 baud telephone numbers. These are not as common as 300 baud numbers, and you may have to make a long-distance call to use one. The information service will probably charge more for accessing a 1200 baud phone number than it does for a 300 baud number. Nevertheless, you may save money in the long run because it will take you less time to transfer large amounts of data. You'll just have to decide on the trade-off—higher service charges or greater on-line time.

Contact the network for the local 1200-baud number in your area. Before using this number, however, you'll have to set your Model 100 communications status to 1200 baud. For example, when the TELCOM: prompt is displayed, press F3 and (after STAT appears) type

57I1E ENTER

for 1200 baud, 7-bit word length, ignore parity, 1-stop bit, and XON/XOFF enabled.

Three of the most widely used information services are CompuServe, The Source, and Dow Jones News/Retrieval. In many ways, CompuServe and The Source are alike. Both services provide general information in areas ranging from science to entertainment. But they differ in the details and commands you must type on your Model 100 keyboard to get that information. On the other hand, Dow Jones is almost entirely devoted to financial information.

Sometimes you'll want a printout of the information sent by a service. While some communications programs have printer on/off capabilities, Telecom does not. To get a printout of the information that is sent to you, we suggest you simply press the F5 (ECHO) function key before the information you want is to be sent. Everything displayed on the Model 100 screen will then be "echoed" onto the printer. Be aware, however, that the printer must be able to print at least as fast as the rate of information transmission (usually 300 baud) or you'll slow down the information transmission and get garbled data ("garbage") on the screen. If you want to "pause" information (that is, hold it on the screen) as it is being sent from a service, *don't* press the PAUSE key. Press the key combination CTRL P instead.

COMPUSERVE

CompuServe has a little of everything and something for everyone—newspapers, magazines, feature stories, weather, sports, CB simulators, bulletin boards, electronic mail (EMAIL), electronic shopping, and entertainment; and features are added almost weekly.

CIS (short for "CompuServe Information Service"), which is based in Columbus, Ohio, is on-line 24 hours a day, 7 days a week. However, there may be times after midnight (Eastern Standard Time) when the system is inaccessible because of system maintenance.

CompuServe charges you for the time you are on-line. For billing purposes, there are prime service and standard service hours.

- Prime time is from 5 A.M. to 6 P.M. Monday through Friday.
- Standard service is from 6 P.M. to 5 A.M. Monday through Friday and all day on Saturday, Sunday, and some holidays.

If you go on-line during standard hours but are still on-line when prime service hours begin, the entire time you are on-line will be billed as prime time. (For similar reasons, always disconnect from the service by logging off first (type **BYE**) then disconnect the phone and turn off the Model 100 or you will be billed for an additional 15 minutes.)

If you want to know the current CompuServe rates, you can get them when you are on-line with the service. You can also get your current charges displayed. Use of some special services (products or information) may incur additional charges.

When you buy a Model 100 Modem Cable, the package contains a CompuServe subscription form and Radio Shack's abbreviated version of the *CompuServe User's Guide*. If you subscribe to CompuServe, you'll receive an expanded version of the manual and an hour of free on-line time.

To learn more about this information service before subscribing, contact CompuServe at

CompuServe Information Service
5000 Arlington Centre Blvd.
Columbus, OH 43220
Phone: 800-848-8990 (in all states except Ohio)
614-457-8650 (in Ohio)

THE SOURCE

The Source, a subsidiary of the Reader's Digest Association, Inc. is another information service that you can access with the Model 100. It also offers a full range of information, including electronic mail (called SMAIL or SourceMail), bulletin boards, conferencing, general news from UPI, business news, magazines, personal computing services, education services, and games. In all, nearly 1300 features are provided for your use.

The Source is accessible 24 hours a day, 7 days a week. You are charged a one-time sign-up fee and are billed by the hour for on-line time. There are three billing rates: most expensive is for business hours on weekdays; less expensive are evenings, weekends, and holidays; and least expensive are the hours between midnight and 7 A.M.

When you subscribe to The Source, you'll receive an excellent

285-page user's manual that tells you exactly how to use the service. For more information, call or write

The Source
1616 Anderson Road
McLean, VA 22102
Phone: 800-336-3366

DOW JONES NEWS/RETRIEVAL

The Dow Jones News/Retrieval Information Service is limited to financial news. It provides information from the *Wall Street Journal*, *Barron's*, and the Dow Jones News Service. Furthermore, stock quotes are provided after a 15-minute delay, along with quotes on bonds (corporate and foreign), options, mutual funds, and U.S. Treasury notes.

Historical quotes on a company or industry are also available. Detailed information on the New York, American, and over-the-counter markets are provided by Media General Services.

Dow Jones is on-line from 6:00 A.M. to 3:00 A.M. weekdays and from 7:00 A.M. to 3:00 A.M. weekends and holidays.

When you buy a Model 100 Modem Cable, the package contains a subscription form for Dow Jones and Radio Shack's abbreviated version of the *Dow Jones User's Guide*. If you subscribe to the service, you'll receive an expanded version of the manual, plus an hour of free on-line time. To get in touch with Dow Jones, call or write

Dow Jones News/Retrieval Information Service
P.O. Box 300
Princeton, NJ 08540
Phone: 800-257-5114 (in all states except New Jersey, and in
Canada)
609-452-1511 (in New Jersey)

B

Networks

Some information services, such as Dow Jones and The Source, do not have a local telephone number for each exchange in North America. However, these services can still be accessed through a telephone network such as GTE's Telenet and Tymshare's Tymnet. To access one of these networks from Canada, you must first establish connection with the Canadian DataPac telephone network, then with Tymnet or Telenet. (Technically speaking, these telephone networks are called "packet switching networks" because information is "switched" from one part of the network to another in distinct groups, or "packets," of data. The switching network (Tymnet or Telenet) identifies and keeps track of each information packet as it sends the data to the correct computer, whether that computer is an information service or your Model 100.)

Each network system has a different sign-on procedure. Typi-

cally, you're first asked what type of computer you have. You must answer by typing in a one- or two-letter identifier code. For your Model 100, Telenet requires that you type **D1**, and Tymnet requires that you type **A**.

Usually the network will then ask which information service you want to communicate with. Your response should put you in contact with the information service, which will then ask for your account number or ID number.

If you want to find out if there is a local telephone network number for your area, both services provide a toll-free information service. For Telenet numbers, call 800-336-0437; for Tymnet numbers, call 800-336-0149.

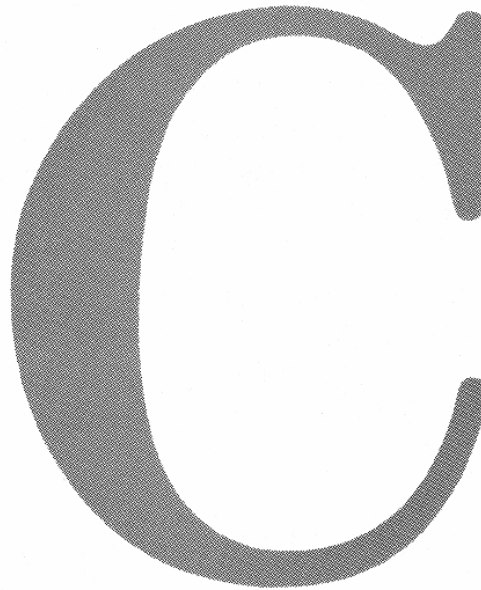
Canadian subscribers should contact their information service for a list of local DataPac phone numbers.

If you want faster information exchange, both networks provide 1200 baud numbers. Contact the network for the local number in your area. Before using this number, however, you'll have to set your Model 100 communications status to 1200 baud. For example, when the TELCOM: prompt is displayed, press F3 and, after STAT appears, type

57I1E ENTER

for 1200 baud, 7-bit word length, Ignore Parity, 1 stop bit, and XON/XOFF enabled.

Keeping in Touch With Other Model 100 Owners



One of the best ways to learn about a computer — any computer — is to talk to other people who are using the same machine. The problem, however, is that new computers are usually in your hands months before useful information other than the owner's manual is available. Fortunately, the Model 100 already has two excellent sources of information.

One source is the Model 100 user's group, available through CompuServe. This "Special Interest Group" (SIG) makes it possible for you to query other Model 100 users, answer their questions, and get free programs. All you have to do is subscribe to CompuServe and access the Personal Computing area.

The other information source is the *Portable 100* magazine. While it may not be the only magazine on the newstands devoted to the Model 100, it was the first and is still one of the best. In it,

you'll find programs, articles, and advertisements that should make using your Model 100 a more enjoyable experience.

THE MODEL 100 SPECIAL INTEREST GROUP (SIG)

To join the Model 100 Special Interest Group, you'll first need to become a CompuServe subscriber. When you buy a Model 100 Modem Cable, you find a CompuServe subscription form in the package. (See Appendix A for more details on information services.)

Before you can communicate with CompuServe, you must make certain hardware connections and set up your software properly. We'll now describe how to do so and what to do once you're on-line.

Connecting the Hardware

To join the Model 100 SIG, you'll need one of the following hardware configurations for your Model 100:

- A Model 100 Modem Cable and a direct connect telephone
- A Model 100 Acoustic Cup set and a telephone.

If you're connecting the Model 100 directly to a telephone (such as in an office or hotel room), use the Model 100 Modem Cable and set up the system as shown in Figure C-1. Be sure to set the Model

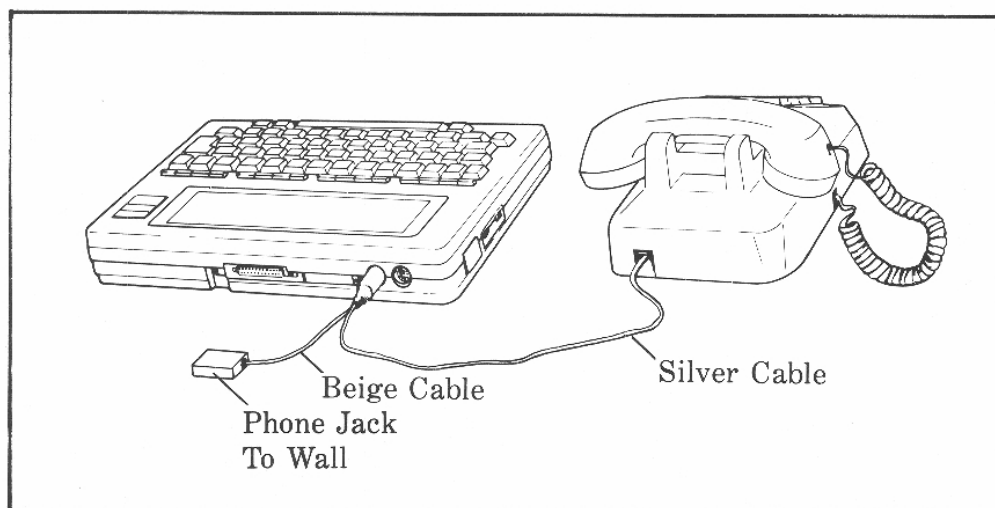


Figure C-1. Connecting Model 100 to a phone using a Modem Cable

100's DIR/ACP switch to DIR and the ANS/ORIG switch to ORIG. (Both switches are on the left side of the computer.)

If you're connecting the Model 100 to the Model 100 Acoustic Cups, set up the system as shown in Figure C-2. Be sure to set the Model 100's DIR/ACP switch to ACP and the ANS/ORIG switch to ORIG.

Setting Up the Software

The next step is to set up the Model 100's communications software so that it is the same as CompuServe's (that is, 300 baud, Ignore Parity, 1 Stop Bit, 7 Word Length). To set the Model 100 so that it matches CompuServe, perform the following steps, starting from the Main Menu:

1. Move the cursor to TELCOM and press ENTER.
2. Press F3 for STAT.
- 3a. If you're using the Model 100's built-in modem, when the prompt STAT appears, type **M7I1E** and press ENTER.
- b. If you're using the Acoustic Cups, be sure the DIR/ACP switch is set to ACP, move the Main Menu cursor to TELCOM, and press ENTER. Then press F3 for STAT. When the prompt STAT appears, type **37I1E** and press ENTER.

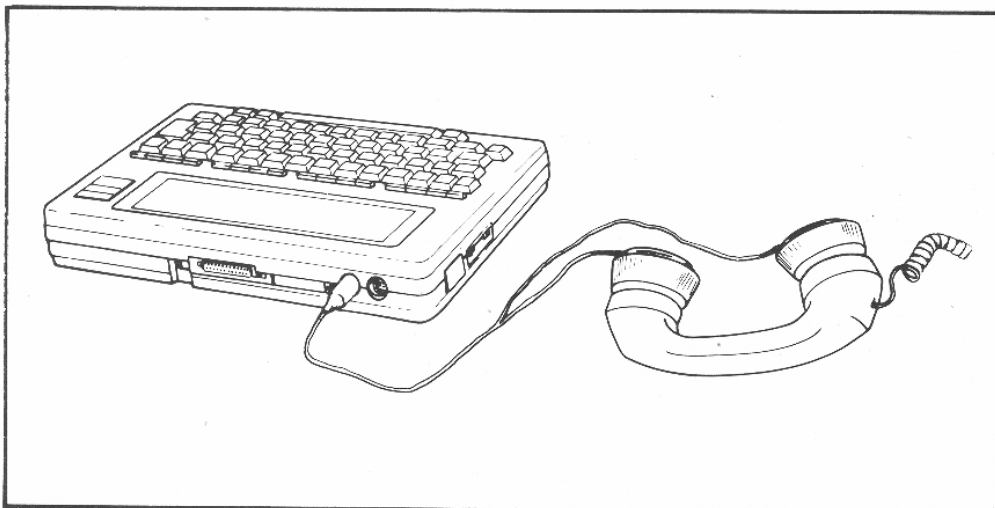


Figure C-2. Connecting Model 100 to a phone using Acoustic Cups

Logging On to CompuServe

At this point, the Model 100 and CompuServe should be ready to "talk" to each other and the TELCOM: prompt should be displayed; press F2 for CALL.

When the CALL prompt appears, type in the local CompuServe number. (If you're in an unfamiliar city, see CompuServe's national phone directory for its local number.) For instance, type **5551234**.

Next (without pressing ENTER), type greater-than and less-than signs after the number

5551234<>

Now press ENTER. The Model 100 will display each digit as it is dialed. When the entire number has been dialed, a few seconds will pass and you'll hear a beep. When the cursor starts blinking, press ENTER. At this point, check to be sure that you're in full duplex. If the screen displays HALF above F4, press F4.

If the connection wasn't made, the TELCOM: prompt will reappear. Check all cable and phone connections. Also check the software status; that is, be sure that the screen displays M7I1E or 37I1E, depending on whether you're using a Modem Cable or Acoustic Cups. Then repeat the procedure for logging on.

When the connection is completed at the other end, a special code will appear, followed by this message:

HOST NAME:

You should type

CIS ENTER

The following prompt from CompuServe will appear:

USER ID:

Simply type in the ID number CompuServe assigned to you when you subscribed and press ENTER; for example,

USER ID: 70703,912 ENTER

After a brief pause, CompuServe will ask for your secret password.

PASSWORD:

Type in your password—carefully, since it won't be displayed on the screen—and press ENTER. If you make a mistake while entering either the ID number or password, CompuServe will tell you so and ask you to repeat the procedure. The results of the entire process should look something like this:

```
Telcom: Call 5551234<>
        Calling 5551234
        01MCI
HOST NAME: CIS
USER ID: 70703,912
PASSWORD:
```

Accessing the Special Interest Group Area

You've now logged on to CompuServe. Next you have to get to the Model 100 Special Interest Group. First, you'll be presented with a screen similar to that in Figure C-3. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something.

COMPUERVE INFORMATION SERVICE

- 1 HOME SERVICES
- 2 BUSINESS & FINANCIAL
- 3 PERSONAL COMPUTING
- 4 SERVICES FOR PROFESSIONALS
- 5 USER INFORMATION
- 6 INDEX

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.

!

Figure C-3. CompuServe main menu

The first step to communicating with other Model 100 users is to select option 3, Personal Computing, by typing 3 and pressing ENTER. You'll then be presented with another menu that looks like that in Figure C-4.

In this case, select option 5, Groups and Clubs, and a SIG menu like the one shown in Figure C-5 will appear.

Since the Model 100 SIG is not listed on this menu, simply press ENTER and another menu, like that in Figure C-6, will appear. Finally, select option 3, Model 100, by typing 3 and pressing ENTER. A message similar to that in Figure C-7 will appear.

Figure C-7 is a sample display. Instead of the name and User ID number we've used, your name and ID will be displayed, followed by the last date and time you were on-line.

When you're ready to continue to the next menu, press ENTER and a menu similar to Figure C-8 will appear. You're now on-line with the Model 100 SIG.

Communicating With Other Model 100 Owners

Once you're on-line with the Model 100 SIG, you have several options. Among them, you can

- Leave messages. You might ask someone a question about

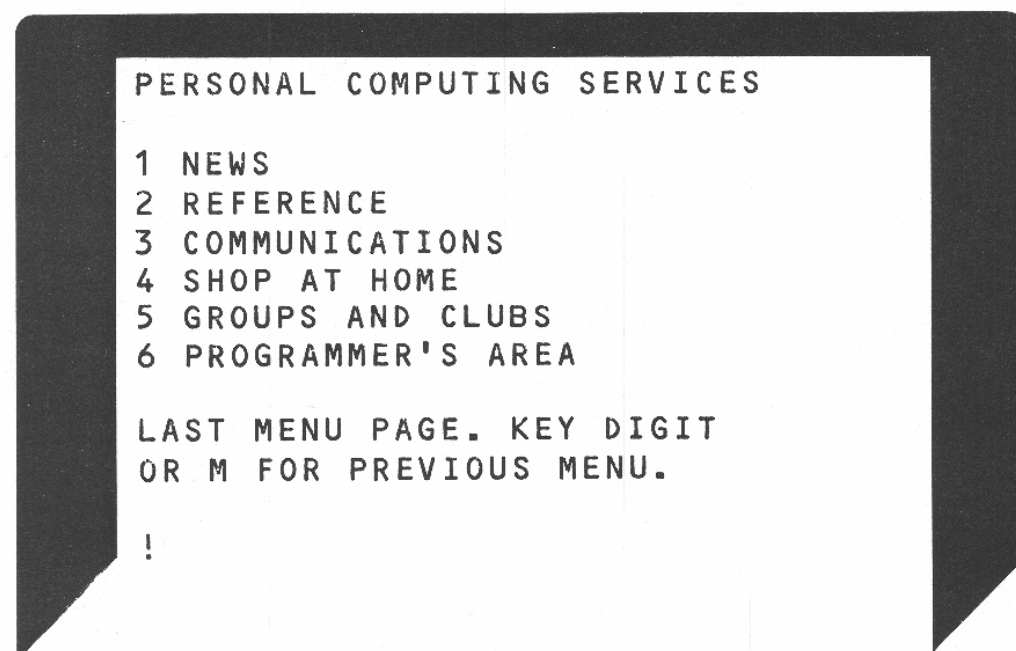


Figure C-4. Personal Computing main menu

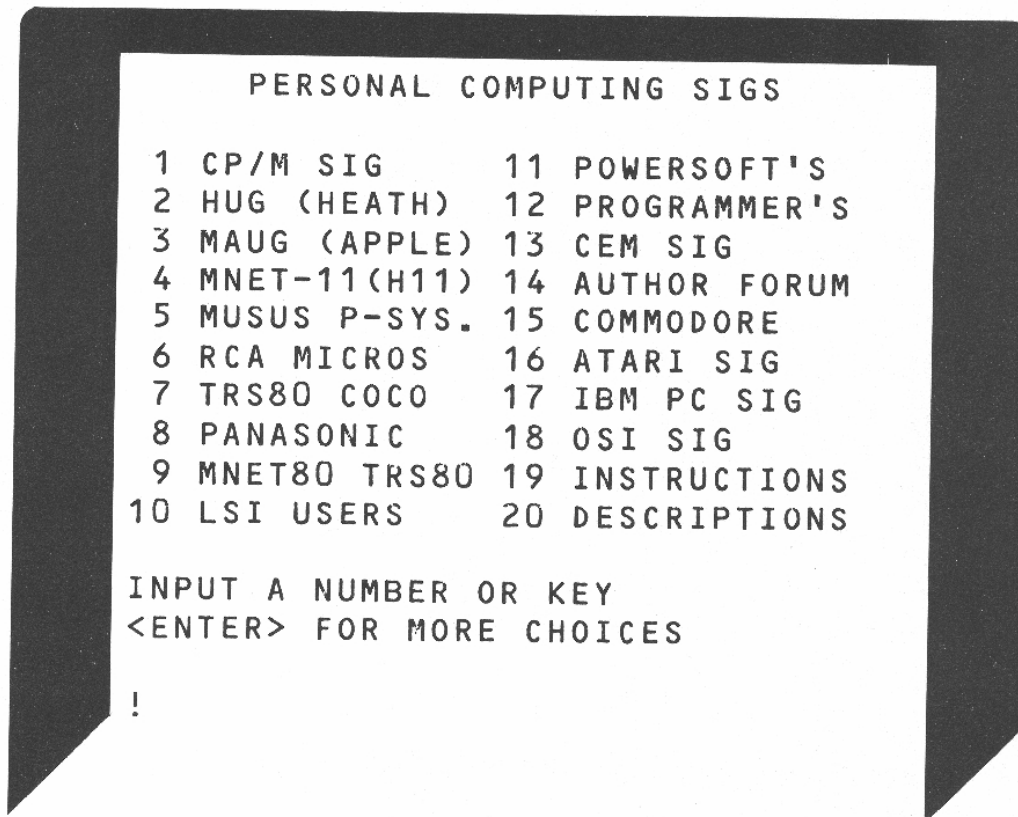


Figure C-5. Personal Computing SIGs menu

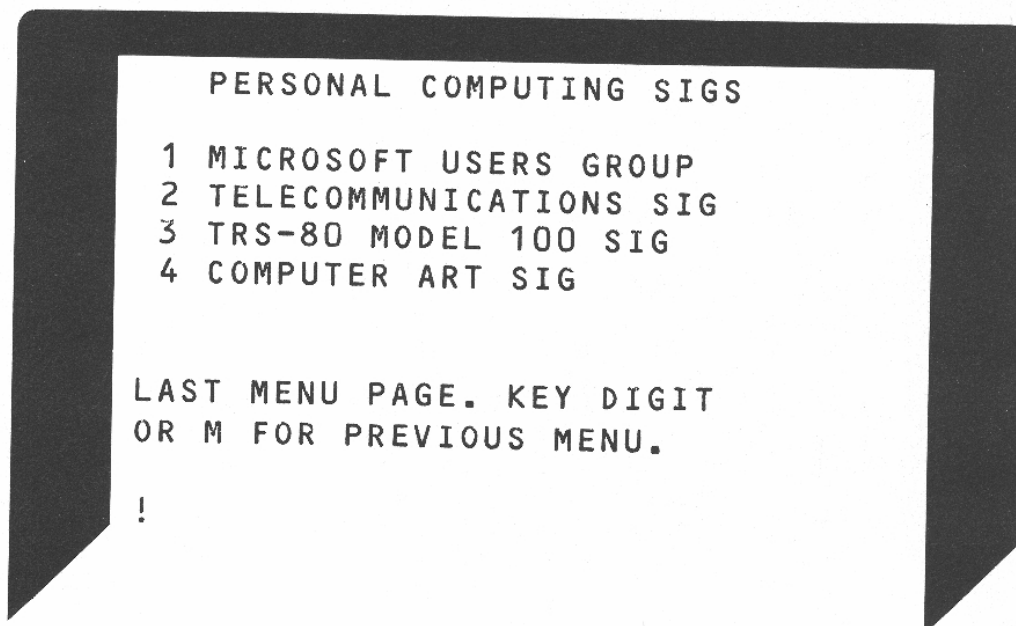


Figure C-6. Second Personal Computing SIGs menu


```
WELCOME TO MODEL 100 SIG, V. 2C(7)

NAME: ASHER FITZGERALD, 70703,912
LAST ON: 04-APR-84 13:42:19
HIGH MSG#: 1137

YOU ARE USER NUMBER 52821
SYSTEM CONTAINS MESSAGES
665 TO 1137

ENTER BLANK LINE FOR MENU:
```

Figure C-7. Model 100 SIG menu with user ID number

your Model 100 or answer a question someone else has asked.

- Read messages. If you've asked a question, someone may have answered it, and you can read the answer. Or you can scan other messages and probably learn new things about your Model 100.

```
MODEL 100 SIG
FUNCTION MENU:
1 (L)  LEAVE A MESSAGE
2 (R)  READ MESSAGES
3 (RN) READ NEW MESSAGES

5 (B)  READ BULLETINS
6 (CO) ONLINE CONFERENCE

9 (OP) CHANGE YOUR SIG OPTIONS
0 (E)  EXIT FROM THIS SIG

ENTER SELECTION OR H FOR HELP:
```

Figure C-8. Model 100 SIG function menu

- Enter the Public Access area for free programs. To do this, type **XA** and press **ENTER** when prompted for a menu selection. If you need help on what to do while on-line, type **?** and press **ENTER** and the SIG will give you further instructions. (For more information, see *The Model 100 Companion: Business and Entertainment Programs for Portable Computing* also published by Osborne/McGraw-Hill.)

With any of these three options, you can use the Model 100's upload and download feature to transfer information from the SIG to your Model 100, or from your machine to the SIG. For example, if there's a program in the Public Access area that you want to try, download it into your Model 100, go off-line with CompuServe, load Model 100 BASIC, and run the program without having to type any of it in. Or if there is a long question you want to ask or a program you want to share with others, type in the information before going on-line with CompuServe. Then go on-line and use the upload feature to leave your message.

To Leave a Message If you want to leave a message, type **1** and press **ENTER** to select option 1, Leave a Message. The SIG will then ask you

TO:

Type in the name or ID number of the person you want to send the message to. (If your message is to no one in particular, type **ALL** or **ANYONE** or the like.) You'll then be asked

SUBJECT:

Type in the subject matter or topic of your message. The SIG will then tell you

ENTER YOUR MESSAGE. USE A BLANK LINE
OR CONTROL-Z TO END MESSAGE.

1:

The sequence so far should look something like this:

TO: BOB DOLSTEIN
SUBJECT: PRINT FORMAT PROGRAM
ENTER YOUR MESSAGE. USE A BLANK LINE
OR CONTROL-Z TO END MESSAGE.

1:

At this point you can begin typing your message. When you finish, press CTRL Z. You'll then be given three options: seeing the message again before you send it, changing it, or storing it on the bulletin board.

If you have a long message that you've previously typed in as a TEXT .DO file and want to upload it into the bulletin board, press F3 when the 1: prompt is displayed. The Model 100 will then ask you the name of the file to upload. Type in the name and press ENTER. Next, you'll be prompted WIDTH:. In most cases, you can simply press ENTER again. When the upload process is complete, press CTRL Z.

To Read a Message If you want to read messages that other Model 100 users have left, select options 2 and 3 from the SIG menu. The two options differ only in that option 2 has all messages and 3 has new messages (those entered since you last logged off). Whether you type 2 or 3, the SIG prompts are the same.

Type 3 ENTER to read new messages. You will be told how many messages are currently on-line; then the SIG will ask you which message you want to start reading. For instance,

```
SYSTEM CONTAINS MESSAGES
665 TO 1137
STARTING MESSAGE NUMBER:
```

Type in a number between starting and ending message numbers. For example:

```
STARTING MESSAGE NUMBER: 1130 ENTER
```

That message, prefaced by a heading, will then appear. Figure C-9 shows a sample message.

- The first line (#: 1130 SEC. 0 – GENERAL) lists the message number and identifies the SIG section where the message is stored.
- The second line (SB: PROGRAM REQUEST) describes the subject of the message and is followed by the date and time of day the message was left on the bulletin board.
- The next line (FM: DAVE LAMMERT 70007,9121) gives the name and user ID number of the person who sent the message.

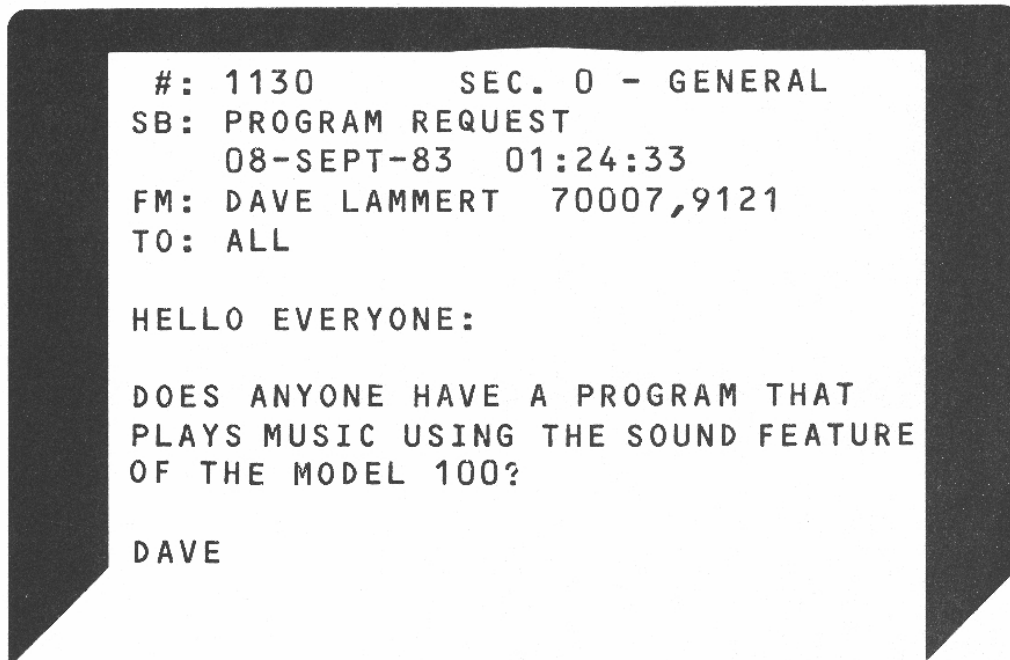


Figure C-9. Message on screen

- The last line (TO: ALL) identifies the intended recipient of the message.

All of this information is supplied when the message is typed in. (See Figure C-7.)

If someone has replied to a particular message, the message will be followed by:

*** THERE IS A REPLY:
1134

This means that Dave should check message #1134 for a reply to his question.

Following a message, there will also be a menu like that in Figure C-10.

- If you want to read the next message, type 1 and press ENTER and the next sequential message will appear. In our example, message #1131 would be next.
- If you want to reply to the message on the screen, type 2 and press ENTER and you will be prompted to give a reply.
- If you want to return to the main SIG function menu (shown in Figure C-8), type 3 and press ENTER.

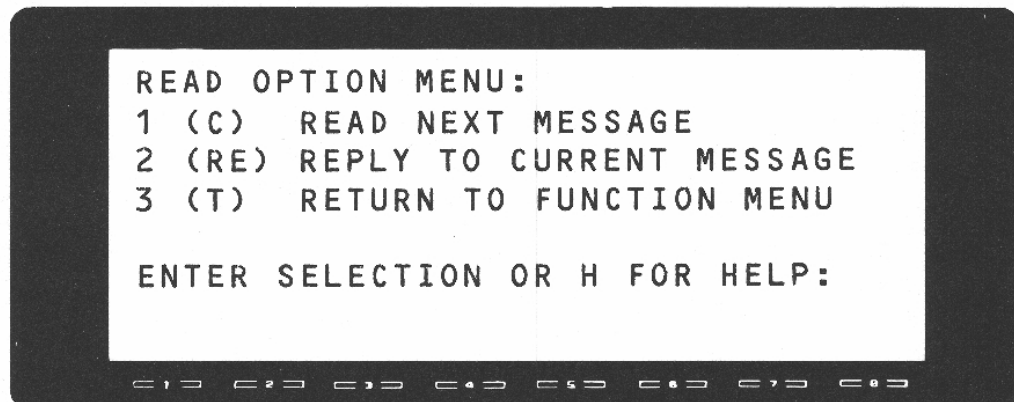


Figure C-10. Read Option menu

If a message to you is lengthy (such as a reply to a question you asked), you can download it into your Model 100. You can then read the message carefully, without paying CompuServe on-line charges to do so. To download a message

1. Identify for yourself the message you want to download and be sure the menu shown in Figure C-10 is on the display; then press F2.

2. When you're asked

File to Download?

type in the name you want to assign. Do not add an extension. The word DOWN on the bottom line of the Model 100 display will then go into reverse video.

3. Referring again to the menu shown in Figure C-10, type 1 and press ENTER to have the message sent. Anything that is then sent from the SIG will be stored in the .DO file you named.
4. When the message is complete, press F2 again to end the download process.

When you go off-line and return to the Model 100 Main Menu, that file will be listed and you can read it as a TEXT .DO file at your leisure.

Public Access to Free Programs The Public Access area of the Model 100 will contain programs that you can download into your computer at no charge (other than the normal CompuServe

connect time charges). To enter the Public Access area

1. Go to a menu like that shown in Figure C-8 and type

XA ENTER

2. You will then be asked

DATABASE FOR WHICH SECTION:

0 1 2 3 4 5 6 7

A list of program categories (games, utilities, and the like) will then appear. Specify the category you want by typing the corresponding number. For instance, to select database 0, type

0 ENTER

3. You will then see another menu (see Figure C-11). If you want a list of special commands that you can use in this area, type ? ENTER and a list of the commands will appear.

```
DATABASE FOR WHICH SECTION:
0 1 2 3 4 5 6 7 0
MODEL 100 SIG DATABASE ACCESS
USE ? FOR HELP
```

```
XA 0 - TEXT :
```

```
1 BRO BROWSE THRU FILES
2 UPL UPLOAD A NEW FILE
3 EXI EXIT TO MODEL 100 SIG
4 HEL HELP
5 XA CHANGE DATABASE
```

```
KEY DIGIT: S
```

Figure C-11. Database options list

We suggest you start by "scanning" a list of available programs. To do this, after being prompted KEY DIGIT:, type

S ENTER

A list similar to that in Figure C-12 will appear.

- The first line of each catalog item is the user ID number of the person who provided the program.
- Directly beneath the user ID number is the program identifier.
- The first column to the right of the program name is the date on which the program was posted; the next column shows the number of people who have used the program.
- The rightmost column tells you when the program was last accessed.

If you want to see what a particular program is, (after being prompted) use the Read command.

```
-----  
[70122,555]  
PRINT.100  26-JAN-84  ACCESS:32  
08-FEB-84  
-----  
[70030,444]  
GAME.100   09-DEC-83  ACCESS:5  
01-JAN-84  
-----  
[780001,3333]  
MUSIC.100  01-DEC-83  ACCESS:4  
12-JAN-84
```

Figure C-12. List of available programs

For example, if you wanted to see the PRINT.100 program in Figure C-12, after being prompted, you would type

R PRINT.100 ENTER

The program will then be listed.

If you decide that you want to use the program and store it in your Model 100, use Telecom's download feature. To do this

1. When the prompt is displayed, press F2. You will be asked
File to Download?

Type in the name you want to assign to the file (in our example, you might type **PRINT**) and press ENTER. Do not add an extension. The word DOWN at the bottom of the Model 100 screen will then go into reverse video.

2. Type in the Read command and the name by which the program is listed in the catalog; for example, **R PRINT.100 ENTER**.
3. The program listing will then scroll on your display. When the program listing is complete, press F2 again to exit the download feature. The word DOWN at the bottom of the display will return to normal video.
4. Log off CompuServe and return to the Model 100's Main Menu. The program will be listed as a TEXT .DO file (for instance, PRINT.DO). Load the file and delete any text that isn't prefaced by a program line number.
5. Load BASIC by positioning the Main Menu cursor on the word BASIC and pressing ENTER. When the BASIC OK prompt appears, type **LOAD** and the file name and press ENTER. The .DO file will then be converted to a .BA program. For instance, type **LOAD PRINT.DO** and press ENTER. Be sure to save the program as a .BA file. (For example, type **SAVE "PRINT.BA" ENTER**.) When you return to the Main Menu, PRINT.BA will be listed. (You can then return to BASIC and kill PRINT.DO to free up memory.)

PORTABLE 100 MAGAZINE

Being the first does not always mean being the best—but in the case of *Portable 100* magazine it probably does. This monthly mag-

azine lets you find out what other Model 100 owners are doing and provides you with plenty of programs and ideas for getting the most out of your Model 100.

The magazine contains articles and programs written for both the computer hobbyist and the business executive. Articles are primarily aimed at ways you can use your Model 100 to communicate, manage, and organize your business more efficiently.

Portable 100 magazine is available at most newsstands in the United States and Canada and is distributed internationally by Curtis Circulation Company. For more information about the magazine, contact:

Portable 100 Magazine
Computer Publishing Company
Highland Mill
Camden, MA 04843
Phone: 207-236-9621

COMPUSERVE'S TANDY NEWSLETTER

CompuServe also provides several information-exchange forums for users of many different types of personal computers, including the Model 100. One such forum is the Radio Shack-sponsored Tandy Newsletter. It gives you such information as descriptions of new products and errors in program or hardware design and "fixes" for same.

To read this newsletter, access CompuServe. When its first menu appears, type **GO TRS-1** and press ENTER. The message **TANDY NEWSLETTER** will appear, followed by a menu that lists Radio Shack's computer products. Type in the number corresponding to the Model 100 and press ENTER. You will then be supplied with specific information about the Model 100.

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